

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1680.—VOL. XXXVII.

LONDON, SATURDAY, NOVEMBER 2, 1867.

(WITH SUPPLEMENT) {STAMPED ...SIXPENCE  
UNSTAMPED...FIVEPENCE

The Mining Exchange, London.

**NOTICE.—THE BUSINESS OF THE MINING EXCHANGE**  
WILL, for the future, BE CARRIED ON AT NO. 5, FINCH LANE,  
LONDON, E.C. Its Rules and Regulations are similar to those of the Stock  
Exchange, and one of which strictly prohibits the Members from advertising  
shares at fixed prices.  
By order of the Committee, W. E. JOHNSON, Sec.

**MR. JAMES CROFTS, STOCK AND SHAREBROKER,**  
NO. 1, FINCH LANE, CORNHILL.  
(Established 24 years.)  
HOLDERS of mining shares difficult of sale in the open market may find pur-  
chasers for the same through Mr. Crofts' agency. Also parties requiring ad-  
vice how to act in the disposal or abandonment of doubtful mining stocks may  
reliably avail of Mr. Crofts' long experience on the market in all cases of  
doubt or difficulty, legal or otherwise.  
The following moderate priced mines, paying regular dividends, are specially  
recommended for investment. The rate of dividend per annum on each mine  
will be furnished on application:—East Caradon, East Lovell, Great Laxey,  
Great Wheal Vor, Prince of Wales, Providence, West Chiverton, Wheal Bassett,  
Wheal Mary Ann, West Seton, Herodfoot, South Frances, and Wheal Kitty  
&c. Agents.  
SPECIAL BUSINESS in North Wheal Crofty, Clifford, East Bassett, East Gren-  
ville, West Caradon, Great North Downs, North Treskerby, Westminster, East  
Brea, Chiverton, and Wheal Trelawny.  
\* Mr. Crofts offers advice respecting mining shares to BUY, SELL, or AVOID.  
Bankers: National Bank of Scotland, Finch-lane.

**MR. JOHN BUMPUS (Successor to WILLIAM LANE),**  
44, THREADNEEDLE STREET, has FOR SALE the following shares,  
of the following companies:—  
25 Bryn Gwlog, £1 3s 9d 25 East Grenville, £2 3s 9d 20 North Downs, 12s. 9d.  
15 Caradon Cons., £12. 30 E. Rosewarne, 6s. 9d. 50 Prince of Wales, 54s.  
15 Clifford, £6 3s. 30 E. Rosewarne, 6s. 9d. 50 Port Phillip, 25s.  
10 Chiverton, £5 16s. 3d. 10 Frontino, 14s. 9d. 2 Providence, £30.  
30 Chontales, £3 16s. 3d. 10 Great Retallack, £3 16s. 3d. 30 South Darren, 24s. 6d.  
15 ditto (royalty shares, 5 St. John del Rey, £259.  
fully paid), £4. 10 Great Laxey, £17 18s. 9d. 30 So. Condurrow, 12s.  
10 Caldbeck Fells, 11s. 9d. 50 No. Treskerby, 37s. 1 Wheal Seton, £106 5s.  
25 Drake Walls, 12s. 9d. 25 North Crofty, £3 5s. 50 Wb. Grenville, 32s. 3d.  
10 East Caradon, £6. 20 New Quebrada, 20s. 6d. 20 Worthing, 11s. 3d.  
BUYER of East Russell, 34s.; Great North Downs, £4; and Wheal Seton,  
102s.

**GUIDE TO INVESTORS.—MR. LELEAN'S STOCK, SHARE,**  
AND FINANCE REGISTER for November, contains a compre-  
hensive review of the Stock and Share Markets: a list of all the dividends paid in  
October; a selection of investments paying 10 to 16 per cent.; and such infor-  
mation as is necessary to guide intending investors. 6d. per copy, or 5s. An-  
nually, post free.  
Published by Mr. BAKER LELEAN, at his offices, 11, Royal Exchange, London.

**MR. WILLIAM WARD,**  
STOCK AND SHAREDEALER,  
No. 29, THREADNEEDLE STREET, LONDON, E.C.

**MR. JOHN BATTERS, STOCK AND MINING**  
SHAREBROKER, 13, THROGMORTON STREET, LONDON, E.C.

**MR. WILLIAM SEWARD, STOCK AND SHAREDEALER,**  
19, THROGMORTON STREET, LONDON, E.C.

**MESSRS. WARD AND JACKMAN,**  
STOCK AND SHAREDEALERS,  
(Established Thirteen years)  
CUSHION COURT, OLD BROAD STREET, CITY, E.C.  
(Members of the Mining Exchange.)

Closing Prices, Friday Evening, November 1:—  
Anglo-Brazilian ..... 10s. to 12s. North Treskerby ..... 36s. to 38s.  
Am Brea ..... £1 13s. 9d. North Wheal Crofty ..... £ 3 1/2 to £ 3 3/4  
Chiverton ..... 34s. to 36s. Prince of Wales ..... 52s. to 54s.  
Chontales ..... 34s. to 36s. Providence ..... 29s. to 30s.  
Chiverton Moor ..... 5s. to 6s. Rossa Grande ..... 10s. to 11s.  
Clifford Amalgamated ..... 5s. to 6s. Tincroft ..... 12s. to 13s.  
Devon Great Consols. .... 42s. to 43s. West Bassett ..... 1s. to 1 1/2s.  
Don Pedro (prem.) ..... 2 1/2s. to 2 3/4s. West Chiverton ..... 70s. to 72s.  
Drake Walls ..... 10s. to 12s. West Caradon ..... 6s. to 7s.  
East Caradon ..... 5s. to 6s. West Drake Walls ..... 4s. to 6s.  
East Carn Brea ..... 2 1/2s. to 3s. West Great Work ..... 3 1/2s. to 3 3/4s.  
East Grenville ..... 2s. to 2 1/2s. West Wheal Seton ..... 17s. to 18s.  
East Lovell (call pd.) ..... 53s. 9d. to 54s. 3d. Wheal Bassett ..... 80s. to 82s. 6d.  
East Russell ..... 17 1/2s. to 18s. Wheal Buller ..... 19s. to 20s.  
Frontino and Bolivia ..... 13s. to 15s. Wheal Grenville ..... 31s. to 33s.  
Great Laxey ..... 17 1/2s. to 18s. Wheal Mary Ann ..... 17 1/2s. to 18s.  
Great Retallack ..... 3 1/2s. to 3 3/4s. Wheal Seton ..... 100s. to 105s.  
Great Wheal Vor ..... 17 1/2s. to 18s. Wheal Trelawny ..... 100s. to 105s.  
Marke Valley ..... 6s. to 6 1/2s.  
Messrs. WARD and JACKMAN are in possession of valuable information respect-  
ing any of the above-named mines, and without pretending to be prophets,  
they believe, if indicated, they will go for anything, success is morally cer-  
tain.  
Messrs. WARD and JACKMAN's "Daily Price List of Mining Shares" for-  
warded to their clients FREE of application. Others who desire to have com-  
piled sent them will be supplied for an annual subscription of 25s.  
Messrs. WARD and JACKMAN refer to their remarks on page 735.  
Nov. 1, 1867. Bankers: London and Westminster, Lothbury.

**MR. THOMAS THOMPSON, MINING OFFICES,**  
12, OLD JEWRY CHAMBERS, LONDON, E.C.

**MR. WILLIAM MARLBOROUGH, 1, GREAT ST. HELEN'S,**  
BISHOPSGATE STREET, LONDON, E.C. (Established 18 years), has  
FOR SALE the FOLLOWING SHARES, at net prices:—  
Anglo-Brazilian, 11s. 3d. 30 Camborne Vean, 30s.  
Am Brea, £14 11s. 3d. 15 Chiverton, £5 11s. 3d.  
Clifford, £6 6s. 3d. 40 Drake Walls, 11s. 6d.  
Devon Great Consols., £2 1/2s. 15 E. Carn Brea, £2 6s. 3d.  
Don Pedro, £2 1/2s. 25 East Russell, 35s. 9d.  
East Caradon, £2 1/2s. 10 Gt. No. Downs, £4 1s.  
East Grenville, £2 1/2s. 30 North Downs, 11s. 3d.  
East Lovell, £2 1/2s. 15 North Crofty, £2 6s. 3d.  
East Russell, £2 1/2s. 3 Providence, £2 2s. 6d.  
Frontino, 14s. 9d. 30 So. Condurrow, 10s. 6d.  
Gt. Laxey, 17s. 9d. 5 Tincroft, £12 1/2s.  
Gt. Retallack, 3 1/2s. 10 W. Gt. Work, £2 11s. 3d.  
Gt. Wheal Vor, 17 1/2s. 1 Wheal Seton, £104.  
Marke Valley, £2 1/2s. 20 Caldbeck Fells, 10s. 6d.  
Crestor, 7s. 20 South Herodfoot, 30s.  
W. MARLBOROUGH is a BUYER or SELLER of shares in Tamar Valley.  
W. MARLBOROUGH does not recommend any particular share or shares, but  
only advises those which he is instructed to sell, and any of which may be  
sold on early application.

**MR. EDWARD BREWIS, PALMERSTON BUILDINGS,**  
34, OLD BROAD STREET, LONDON, E.C., has BUSINESS at net  
prices in all SHARES dealt in on the market.  
Bankers: National Bank, London, E.C.

**JOHN RISLEY, STOCK AND SHAREBROKER**  
(SWORN BROKER),  
48, THREADNEEDLE STREET, LONDON, E.C.  
J. RISLEY recommends the purchase of shares in Wheal Grenville, East Gren-  
ville, Great Retallack, North Retallack, and East Wheal Russell, as they are  
likely to rise 80 per cent. in a short time.  
Bankers: London and Westminster, Lothbury.

**MR. GEORGE BUDGE, STOCK AND SHAREDEALER,**  
No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established  
24 years), has FOR SALE at net prices:—100 West Wheal Kitty, 14s. 9d.; 10  
Am-Brea, £28; 20 Rose and Chiverton United; £5 6s. 3d.; 100 Redmoor, 2s.;  
Miners; 120 West St. Ives; 100 New Crow Hill, 12s. 6d.; 50 Great South  
Whitton, 12s. 6d.; 45 Okel Tor; 20 South Darren; 60 West Drake Walls,  
10s. 6d.; 100 West Tremayne, 10s.; 80 Frontino and Bolivia; 50 Lovell Con-  
sols., 6s.; 60 East Chiverton; 2 West Chiverton; 30 Dale, 2s. 6d.; 40 East  
Rosewarne, 6s. 6d.; 3 Tincroft, £13; 50 West Maria and Fortescue; 100 Pen-  
ryn; 15 Cuddra, 15s.; 65 Crestor, 7s. 6d.; 25 Prince of Wales; 40 Great South  
Whitton; 5 West Frances, £24; 50 Drake Walls; 10 Summer Hill, £12; 40  
Great Retallack, 8s.; 20 East Laxey; 10 Wheal Uny; 1 Margery, £7; 20 East  
Little Hill, 1s. 9d.; 10 East Seton; 50 Frontino and Bolivia, 15s.; 50 Don Pedro;  
Anglo-Brazilian, 12s.; 125 Anglo-Italian; 60 New Quebrada; 80 Port Phillip.

**PETER WATSON'S "WEEKLY MINING CIRCULAR AND**  
SHARE LIST—SYNOPSIS OF CORNISH AND DEVON MINES," of  
Friday, Nov. 1, No. 448, Vol. IX., price 6d. each copy, forwarded on applica-  
tion, contains information on the following mines:—  
West Chiverton. East Wheal Seton. South Caradon.  
No. Wheal Chiverton. West Caradon. Devon Great Consols.  
Great Wheal Vor. Great Retallack. East Wheal Russell.  
Wheal Seton. Great Retallack. Don Pedro.  
North Treskerby. Clifford Amalgamated. Chontales.  
West Great Work. Wheal Buller. Frontino.  
East Wheal Lovell. Wheal Bassett. Anglo-Brazilian.  
West Wheal Kitty. Drake Walls. United Mexican.  
West Drake Walls.  
With Special Reports on North Treskerby and West Great Work.  
PETER WATSON, Stock and Sharedealer, 79, Old Broad-street, London, E.C.

**EAST WHEEL RUSSELL.—MR. PETER WATSON is a**  
BUYER or SELLER of these SHARES at the close market price of  
the day; and those who wish to operate can do so with him.

**STOCK EXCHANGE SECURITIES.—THE LONDON DAILY**  
RECORD, STOCK AND SHARE LIST (entered at Stationers' Hall).  
Annual subscription, £1 1s.; by post, £2 2s.; monthly subscription, by post,  
4s.; single copy, 1d.—by post, 2d. Published by PETER WATSON, Stock and  
Sharedealer, 79, Old Broad-street, London, E.C.  
This Stock and Share List is published every evening at 5 o'clock, and con-  
tains the latest prices of railways, banks, colonial government securities, Cornish  
and Devon mines, gold mines, insurance, foreign railways, and miscellaneous  
shares; comments made on the daily operations in stocks and shares, showing  
the rise and fall in prices. Forwarded by same night's post to subscribers (re-  
gular customers free). Shareholders or investors about to operate in stocks  
or shares can be furnished with the list on application.  
N.B.—The present is a most favourable opportunity for the investment of  
capital in several foreign stocks, railways, mines, banks, &c., which, on the pre-  
sent market price, are paying in interest or dividends at the rate of 5 to 15 per  
cent. per annum.

**THE LONDON DAILY RECORD—STOCK AND SHARE**  
LIST—STOCK EXCHANGE SECURITIES. Published every evening at  
5 o'clock. It contains the latest prices of railways, banks, mines, foreign stocks  
and bonds, financial, insurance, and miscellaneous shares, remarks on the daily  
rise and fall in prices, with advice as to purchase and sales. Annual subscrip-  
tion, £1 1s.; by post, £2 2s.; monthly subscription—by post, 4s.; single copy, 1d.;  
by post, 2d.  
PETER WATSON, Stock and Sharedealer, 79, Old Broad-street, London, E.C.

**INVESTMENT OR SPECULATION.—A SELECTED LIST OF**  
RAILWAYS, BANKS, MINES, COLONIAL SECURITIES, FOREIGN  
GOVERNMENT BONDS, &c., forwarded to bona fide investors on application.  
In addition to the high rate of interest many of the above are paying, there is  
now every probability of a great rise in market value.

**PETER WATSON, STOCK AND SHAREDEALER,**  
79, OLD BROAD STREET, LONDON  
(three doors only from Hercules-passage, entrance to the Stock Exchange).  
Twenty-three years' experience.  
(Two in Cornhill and Twenty-one in London.)  
Bankers: The Alliance Bank, and the Union Bank of London.  
References given and required (when necessary) in all the principal towns of  
the United Kingdom.

**MR. EDWARD COOKE, STOCK AND SHAREDEALER,**  
76, OLD BROAD STREET, LONDON, E.C.  
EDWARD COOKE, having returned from visiting the mining districts of Corn-  
wall will feel much pleasure in affording information on the mines in the Chiverton,  
Great Wheal Vor, and Helston districts, which latter includes East Wheal  
Lovell, Trumpet Consols, and other mines.  
Orders for all kinds of Stock Exchange securities, either by letter or telegraph,  
promptly attended to.  
N.B.—A Daily Price List on application.  
Satisfactory references given in any town in the United Kingdom.  
Bankers: Alliance Bank.

**MR. W. H. CUELLO,**  
(late of the firm of WATSON AND CUELLO),  
STOCK AND SHAREDEALER,  
1, FINCH LANE, CORNHILL.  
References exchanged.  
All transactions can be for cash or account.  
Bankers: Bank of England.

**MESSRS. JAMES D. GINN AND CO.,**  
STOCK AND SHAREDEALERS,  
3, CROWN COURT, THREADNEEDLE STREET, CITY, E.C.  
Messrs. GINN and Co. are BUYERS or SELLERS of the following for cash  
or account:—  
Closing Prices, Friday, Nov. 1.  
Buyers. Sellers. Buyers. Sellers.  
Chontales (Limited) ..... £ 3 1/2 to £ 3 3/4 North Downs ..... 11s. to 12s.  
Carn Brea ..... 14s. to 15s. North Treskerby ..... 36s. to 38s.  
Chiverton ..... 5s. to 6s. Prince of Wales ..... 52s. to 54s.  
Chiverton Moor ..... 5s. to 6s. Providence ..... 29s. to 30s.  
Clifford Amalgamated ..... 5s. to 6s. Rossa Grande ..... 10s. to 11s.  
Drake Walls ..... 11s. 6d. to 12s. 6d. Tincroft ..... 12s. to 13s.  
East Bassett ..... 13s. to 15s. West Bassett ..... 1s. to 1 1/2s.  
East Caradon ..... 5s. to 6s. West Chiverton ..... 70s. to 72s.  
East Carn Brea ..... 2 1/2s. to 3s. West Caradon ..... 6s. to 7s.  
East Grenville ..... 2s. to 2 1/2s. West Drake Walls ..... 4s. to 6s.  
East Lovell ..... 53s. 9d. to 54s. 3d. West Great Work ..... 3 1/2s. to 3 3/4s.  
East Russell ..... 17 1/2s. to 18s. West Wheal Seton ..... 17s. to 18s.  
Frontino and Bolivia ..... 13s. to 15s. Wheal Bassett ..... 80s. to 82s. 6d.  
Great Laxey ..... 17 1/2s. to 18s. Wheal Buller ..... 19s. to 20s.  
Great Retallack ..... 3 1/2s. to 3 3/4s. Wheal Grenville ..... 31s. to 33s.  
Great Wheal Vor ..... 17 1/2s. to 18s. Wheal Mary Ann ..... 17 1/2s. to 18s.  
Marke Valley ..... 6s. to 6 1/2s. Wheal Seton ..... 100s. to 105s.  
Messrs. GINN and Co. are in possession of valuable information respect-  
ing any of the above-named mines, and without pretending to be prophets,  
they believe, if indicated, they will go for anything, success is morally cer-  
tain.  
Messrs. GINN and Co. refer to their remarks on page 735.  
Nov. 1, 1867. Bankers: Glyn, Mills, and Co.

**MR. J. B. REYNOLDS, STOCK AND SHAREDEALER,**  
70 and 71, BISHOPSGATE STREET WITHIN, LONDON, E.C., par-  
ticularly recommends the purchase of sound mining securities. The experience  
of the past illustrates the wisdom of this advice.  
Mr. REYNOLDS refers with pleasure to the present position of mines which he  
has from time to time recommended, and feels assured that there is a very  
favourable future in store for them.  
Business transacted at net prices in all kinds of stocks and shares. Mines  
inspected on very advantageous terms.  
Mr. REYNOLDS is ready to do business in—  
West Wheal Kitty. Rose and Chiverton. Chontales.  
West St. Ives. West Chiverton. Great Wheal Vor.  
West Great Work. Wheal Chiverton. North Crofty.  
Established Eleven Years.  
Mr. REYNOLDS refers to his letters on p. 719.  
70 and 71, Bishopsgate-street Within, London, E.C., Nov. 2, 1867.

**WEST ST. IVES.—MR. J. B. REYNOLDS is a BUYER**  
of any number of SHARES in this company. Sellers will please state  
lowest price. Orders to inspect available any day in the week, and can be ob-  
tained by any Shareholder on application to the SECRETARY.  
70 and 71, Bishopsgate-street Within, London, E.C., Nov. 2, 1867.

**MR. PALMERSTON BUILDINGS, OLD BROAD STREET, AND MINING**  
EXCHANGE, LONDON, E.C. STOCK AND SHAREDEALER.  
Mines, British and Foreign. Colonial Securities, Railway, Bank, Miscella-  
neous, and every description of shares BOUGHT and SOLD at the closest  
dealing prices for cash or account.  
Bankers: London and Westminster.

**INVESTMENT, LOAN, AND BANK AGENCY.**  
Established 1839.  
Investments and Sales of every description of Public Securities can be effected,  
either for immediate or deferred settlement, as may be agreed upon.  
Loans granted, for one year or any shorter period, on Stocks and Shares having  
a market value.  
Deposits of all amounts received at 5 per cent.  
Bank and Money Agency Business generally undertaken.  
RICHARD TAYLOR AND COMPANY.  
No. 12, Clement's-lane, Lombard-street, London, E.C.

**M. R. CHARLES THOMAS,**  
MINING AGENT, GENERAL SHAREDEALER, AND AUCTIONEER,  
3, GREAT ST. HELEN'S, LONDON, E.C.

Now ready, price One Shilling; post-free, fourteen stamps,  
**MINING FIELDS OF THE WEST:**  
A PRACTICAL EXPOSITION OF THE  
PRINCIPAL MINES AND MINING DISTRICTS OF CORNWALL AND DEVON.  
Published by CHARLES THOMAS,  
At No. 3, Great St. Helen's, London, E.C.

**MESSRS. LANE AND GIBBS, 2, ROYAL EXCHANGE,**  
LONDON, E.C. (Members of the Mining Exchange), STOCK AND  
SHAREDEALERS, transact business in all kind of securities at closest net  
prices for cash or account.  
MARKE VALLEY sale of ore on 17th inst. realised £1750. This will leave over  
£700 profit for the month. The next sale will give even a larger profit. Our  
advice is—STILL BUY the shares.  
HOLDERS of shares in East Caradon, East Russell, North Crofty, West Rose  
Down, and Great North Downs Mines will always find a ready market by apply-  
ing to the above.  
Daily price list on application.  
Bankers: London and County Bank.

**SHARP'S GUIDE TO SHAREHOLDERS.**  
SHARP'S GUIDE TO CAPITALISTS.  
SHARP'S GUIDE TO TRUSTEES.  
SHARP'S GUIDE TO INVESTORS.  
SHAREHOLDERS, CAPITALISTS, TRUSTEES, INVESTORS,  
requiring valuable and reliable information, and seeking safe, sound, and pro-  
fitable investments, paying good dividends, should at all times consult  
SHARP'S GENERAL INVESTMENT CIRCULAR.  
It is a "Safe Guide" for One and All.  
GRANVILLE SHARP, STOCK AND SHAREDEALER,  
No. 32, POULTRY, LONDON, E.C.  
Circular post free. [Established 1852.]

**MR. HENRY MANSELL,**  
STOCK AND SHAREDEALER,  
No. 44, THREADNEEDLE STREET, LONDON, E.C.  
Member of the Mining Exchange.  
Mr. HENRY MANSELL has SPECIAL BUSINESS in North Treskerby, Prince  
of Wales, Great Retallack, Grenville, East Grenville, and Tamar Valley Mines,  
and is in a position to advise either the purchase or sale of the above shares.  
References exchanged.  
Bankers: London Joint-Stock Bank.

**MESSRS. POWELL AND MOSS, STOCK AND**  
SHAREDEALERS, 78, OLD BROAD STREET, LONDON, E.C., and  
Mining Exchange, London, E.C.  
Messrs. POWELL and Moss have large dealings in the principal Market Mines.  
They are also prepared with a selected list of shares for investment or specula-  
tion.  
SPECIAL BUSINESS as BUYERS or SELLERS of shares in the Gold Mines.  
Bankers: Bank of England.

**MATTHEW GREENE, STOCK AND SHAREDEALER,**  
ST. MICHAEL'S HOUSE, CORNHILL, LONDON, E.C.  
Mr. MATTHEW GREENE recommends for immediate purchase Tamar Valley  
silver-lead shares, now selling for a few shillings per share, and certain for a  
rise. Parties desirous of investing in this most promising lead mine should  
apply at once; specimens of the lode, and every particular can be had at Mr.  
MATTHEW GREENE'S office.  
Mr. MATTHEW GREENE confidently asserts that no such chance is at present  
to be had as the shares in this mine—"I have this day received reliable infor-  
mation from the mine, stating the lode in the shaft to be worth £20 per fathom  
for rich silver-lead."

**MR. JOHN R. PIKE CONTINUES TO TRANSACT BUSINESS**  
as a DEALER in all kinds of Public Securities, including shares in rail-  
ways, banking, mining, and other companies, and furnishes advice, based upon  
20 years' experience, to large or small capitalists seeking such investments.  
Speculators in the foreign gold schemes, now commanding much attention on  
the Stock Exchange, would do well to consult Mr. PIKE at the present moment.  
A list of shares on hand for sale will be forwarded on receipt of a stamped en-  
velope, and to those interested in British mines this list would be found of value.  
Author of "Britain's Metal Mines" in the press, and will soon be ready revised  
and enlarged.  
Nov. 1, 1867. 12, St. Michael's-alley, Cornhill, London.

**CHONTALES GOLD COMPANY.—FULL PARTICULARS OF**  
THE DIFFERENT CLASSES OF SHARES can be obtained on application to  
Mr. J. H. MURCHISON, No. 8, Austin Friars, E.C.

**MR. THOMAS SPARGO, STOCK AND SHARE DEALER,**  
224 & 225, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.  
Bankers: Consolidated Bank, Threadneedle-street.

**SPECIAL NOTICE.**  
**BARTLETT AND CHAPMAN, STOCK AND**  
SHAREDEALERS, 2, BUCKLESBURY, LONDON, E.C.  
Having just RETURNED from CORNWALL, we are enabled to give infor-  
mation as to the present condition and future prospects of mines in the Chiverton  
and Lovell districts, and have business as BUYERS or SELLERS in the  
following shares, at close net prices:—  
East Chiverton. East Lovell. Great Laxey.  
West Chiverton. Lovell Consols. Rosewarne Consols.  
Great South Chiverton. Trumpet Consols. East Providence.  
Chiverton. Great Wheal Vor. Clifford.  
Chiverton Moor. Tincroft. East Russell.  
ROSEWARNE CONSOLS.—We recommend the immediate purchase of these  
shares at present quotations, as they are certain to advance within the next  
few weeks. The discovery in the 80 west still holds good, worth £20 per fathom,  
which will leave a good profit to the shareholders. This is one of the cheapest  
mines in the market; see report in this day's Journal.  
Bankers: London and Westminster Bank.

**MR. T. ROSEWARNE, 81, OLD BROAD STREET,**  
LONDON, has BUSINESS in the following shares for cash or time on:—  
Clifford. Frontino. Prince of Wales.  
Chiverton Moor. Gawton. North Treskerby.  
Chontales. Great North Downs. South Grenville.  
Devon Consols. Great South Chiverton. West Seton.  
Don Pedro. Great Retallack. Wheal Valley.  
East Carn Brea. North Crofty.  
PRINCE OF WALES.—From my report this morning, the 55, both east and west,  
are looking much better. One worth 35s., and the other 20s. per fathom, and  
likely for a further improvement. No lode cut in the cross-cut north as yet; the  
rock is highly mineralised, and letting out a quantity of water. Shares are  
better—55s., 55s., so that parties who bought on my recommendation at 47s. can  
now realise a fair profit, if they feel disposed to do so. I am a BUYER of any  
part of 3000 shares at market prices; also 2000 North Treskerby, 2000 Okel Tor,  
1000 East Carn Brea, 500 Chiverton Moor, 2000 Frontino.  
I am NOT a SELLER of Chontales at present below the market prices for time  
on; this will also apply to East Russell.  
SPECIAL BUSINESS in the shares marked thus \*.  
Money advanced on good mining shares. Office hours from 10 to 4.  
Bankers: Bank of England.

**MR. JOS. J. REYNOLDS, PALMERSTON BUILDINGS,**  
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Nov. 1, 1867.



## IMMENSE SAVING OF LABOUR.

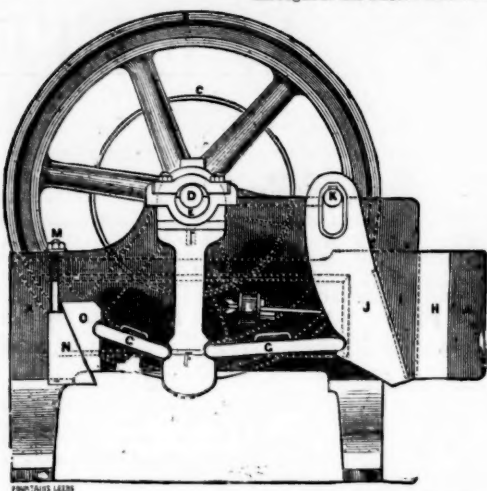
TO MINERS, IRONMASTERS, MANUFACTURING CHEMISTS, RAILWAY COMPANIES, EMERY AND FLINT GRINDERS, MACADAM ROAD MAKERS, &c., &c.

# BLAKE'S PATENT STONE BREAKER,

OR ORE CRUSHING MACHINE,

FOR REDUCING TO SMALL FRAGMENTS ROCKS, ORES, AND MINERALS OF EVERY KIND.

It is rapidly making its way to all parts of the globe, being now in profitable use in California, Washoe, Lake Superior, Australia, Cuba, Chili, Brazil, and throughout the United States and England. Read extracts of testimonials:—



*The Parys Mines Company, Parys Mines, near Bangor, June 6.*—We have had one of your stone breakers in use during the last twelve months, and Captain Morcom reports most favourably as to its capabilities of crushing the materials to the required size, and its great economy in doing away with manual labour.  
For the Parys Mining Company, JAMES WILLIAMS.

H. R. Marsden, Esq.

*Ecton Emery Works, Manchester.*—We have used Blake's patent stone breaker made by you, for the last 12 months, crushing emery, &c., and it has given every satisfaction. Some time after starting the machine a piece of the moveable jaw about 20 lbs. weight, chilled cast-iron, broke off, and was crushed in the jaws of the machine to the size fixed for crushing the emery.  
H. R. Marsden, Esq. THOS. GOLDSWORTHY & SONS.

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WILLIAM HUNT.

*Welsh Gold Mining Company, Dolgelly.*—The stone breaker does its work admirably, crushing the hardest stones and quartz.  
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Our 15 by 7 in. machine has broken 4 tons of hard whinstone in 20 minutes, for fine road metal, free from dust.  
Messrs. ORD and MADDISON, Stone and Lime Merchants, Darlington.

*Kirkless Hall, near Wigan.*—Each of my machines breaks from 100 to 120 tons of limestone or ore per day (10 hours), at a saving of 4d. per ton.  
JOHN LANCASTER.

*Ovoca, Ireland.*—My crusher does its work most satisfactorily. It will break 10 tons of the hardest copper ore stone per hour.  
WM. G. ROBERTS.

*General Frémont's Mines, California.*—The 15 by 7 in. machine effects a saving of the labour of about 30 men, or \$75 per day. The high estimation in which we hold your invention is shown by the fact that Mr. Park has just ordered third machine for this estate.  
SILAS WILLIAMS.

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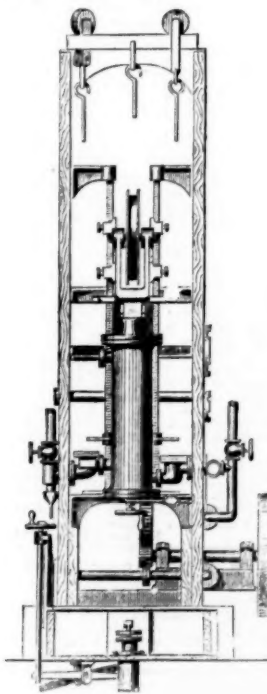
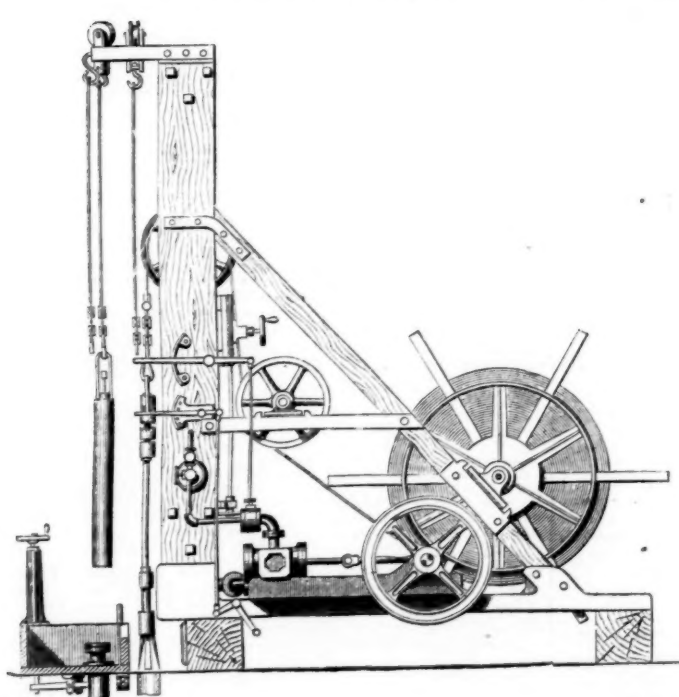
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# IMPROVED PATENT EARTH BORING MACHINES.

A considerable number of these Machines has been in most successful operation for some years in exploring for minerals and coal and the boring of Artesian wells, for supplying many towns, manufactories, &c., with water. Upwards of 50 bore-holes, from 6 in. to 24 in. diameter, representing in all 20,000 ft. of boring, have been sunk in various parts of the world, through rocks of every form and degree of hardness, from the New Red Sandstone to the Igneous formations, as well as Chalk and the London Clay.

The Machine is worked entirely by steam-power, requiring a small boiler, from 6 to 12 horse power, according to diameter of the bore-holes. The framing is made of wood, to render the Machine of easy transport.

The rate of boring is not appreciably decreased as the depth increases, as a flat rope is used in place of rods in the old system.

Prices, &c., can be had on application.



# PATENT FLEXIBLE TUBING,

AND BRATTICE CLOTH FOR MINES

MANUFACTURED BY

**ELLIS LEVER,**

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# THE USEFUL MINERALS.

So many who have no intention of becoming practical metallurgists from any business considerations are desirous of obtaining some general acquaintance with the minerals from which the common metals are produced that the volume by Mr. JEAN REYNAUD, just issued in the Bibliothèque des Merveilles, will be sure to find a very large number of readers. The book is written in a thoroughly popular style, yet conveys a large amount of useful information. The author very truly remarks that there are two ways of studying natural history—the one, properly speaking, scientific, the other which may be called social. Mr. Reynaud chooses the latter, which, although opening out a less vast field than the scientific, affords one which can be examined with no less satisfaction. In the first place, he treats of stone in general, and tells us that, in common parlance, the name of stone is given to all mineral substances which are solid, incombustible, insoluble in water, and non-malleable. Mineralogy devotes itself to the study of such of these substances as are homogeneous in their composition, or have all their particles exactly alike. These constitute what are termed simple minerals. In their pure state these minerals assume simple crystalline forms, which are due to their chemical composition, and facilities are thus offered for defining them in a very precise manner, and placing them in analogous groups. But most of these properties, although so valuable for scientific purposes, are of comparatively little importance to the ordinary wants of man, and thus it is that the mineralogical classifications are seldom considered in industrial applications. And it should also be observed that the crystallised minerals which form the chief basis of the studies than as matters of real importance. Most of the stones employed by man are either compound or amorphous minerals, which in the eyes of the mineralogist belong only to a secondary order.

From these few observations the general nature of Mr. Reynaud's views can be very nearly guessed; he recognises the importance of scientific culture, but he also knows that there are a large number of persons who will profit more from an acquaintance with the ascertained facts which scientific research has laid open than from any attempt to make those researches for themselves. It is for this class of readers that Mr. Reynaud has written, and for this reason a popular classification has been adopted, which enables each reader to concentrate his attention upon precisely that part of the subject which is of more immediate interest to him. After disposing of stones, he proceeds to treat of earths, and then goes on to combustibles and the metalliferous minerals, concluding the volume with a chapter on mineral waters. In each chapter the subject taken up is treated exhaustively, though popularly, so that an admirable collection of mineralogical knowledge is readily obtained. Thus, the chapter on stones supplements the remarks upon stone in general by observations on the compositions of stones, granite, porphyry, limestone, and marbles, gneiss, sandstones, schistose stones and slates, quartz and fire-stones, and gems and precious stones. The other chapters are subdivided in the same way—the earthy minerals are treated of as earths in general, vegetable earth, marbles, brick, pottery, and porcelain earths, meerschaum, fuller's earth, ochres, and sand. The account of coal in general is succeeded by others on pit-coal, anthracite, lignite, peat, bitumen, and sulphur, and other non-carbonaceous combustibles.

The next chapter, embracing the metalliferous minerals, is a most interesting one. As in the other chapters, a general outline is first given, and he then gives excellent accounts of the ores of iron, copper, lead, silver, mercury, tin, zinc, gold, platinum, antimony, bismuth, nickel, arsenic, manganese, cobalt, and chrome respectively. Under each head quite as much information is given as is likely to be required by the general reader, whilst from the character of that information it will be found of great utility even to the practical man, who is too often so entirely unacquainted with the principles upon which the operations he performs are based that the smallest variation in his raw materials will place him at a great disadvantage, and render him comparatively helpless. For example, how few working men connected with metallurgical pursuits have troubled themselves to learn what elements are likely to be contained in the ore they work beyond the actual metal they seek to extract, but the perusal of such brief and useful observations as those of Mr. Reynaud are thoroughly calculated to set them thinking. "Ores, with very few exceptions," he remarks, "are the result of the combination of divers metals with oxygen or with sulphur; those which beside oxygen contain carbonic acid—that is to say, the carbonates—may be assimilated to those that contain oxygen only, since upon their being heated the carbonic acid is disengaged, and therefore, gives no further trouble. These are the natural combinations which furnish nearly all metals. There are some ores, but they are very rare, which contain chlorine or phosphorus. There are also those which contain two or more metals combined, as silver and lead, copper and iron, arsenic or antimony, silver, &c. As to these latter, sometimes they endeavour to extract all the metals they contain, and sometimes, when that is too difficult or useless, attention is paid to the most valuable only, the others being neglected. And, lastly, it must not be forgotten that ores are scarcely ever pure, and that they are ordinarily mixed with a larger or smaller proportion of the stony substances between which they are found in the bowels of the earth, and which is called the gangue."

It certainly appears scarcely possible to give more information in a paragraph of the same length as this, yet it is but a fair specimen of the whole contents of the book, every portion of which is, moreover, written in the same concise and lucid style. The work is one which may be read through without the reader feeling that he is studying a scientific subject; but the knowledge he will have acquired by the time he reaches the end of it will amply satisfy him that his time has not been unprofitably occupied in perusing it.

\* "Histoire Élémentaire des Minéraux Usuels." Par JEAN REYNAUD. Paris and London: L. Hachette and Co.

**CLEANING IRON SHIPS WHILE AFLOAT.**—At the recent meeting of the Liverpool Polytechnic Society, Mr. HARRISON read a paper On the Liability of Iron Ships to Foul, and explanatory of his patent mechanical apparatus for cleaning them while afloat. He first alludes to the chemical and other ignorance of his predecessors, and then observes that the nature of the barnacle is such that it never gathers its food on the skin of the ship, but at a considerable distance from it; in short, the animal itself never comes in contact with the ship at all, and so can never be affected by any poisonous substance whatever that may be put upon the plates of the vessel. True it is that the barnacles adhere to the ship, and so deeply do they take their hold that when they attain their full size they are found cemented hard and fast to the iron itself, having in the process of growth removed all the paint, and also all the poison. But it only requires one to look at the shell of the barnacle to see that it is the outside of the shell that adheres to the vessel, not the animal, and that between him and the poison he has built up a strong and impervious calcareous wall, and that the door of his house at which he receives his food stands in every instance at right angles to the surface of the ship, and in some instances his feeding process is carried on several inches from it. This fallacy of the employment of poison has been strengthened, if not originated, by the fact that copper and yellow metal, which last is an alloy of copper and zinc, will keep a wooden ship comparatively clean, and that because copper is of a poisonous nature, therefore, it poisons these barnacles. But the fact is that it is not the poisonous qualities of the copper that kills the barnacles, or prevents them from adhering to the ship, for they really do adhere to copper as fast as to anything else; but this is due to its other peculiarity of rapid oxidation and exfoliation, which sheds the young barnacles into the sea before they acquire even a moderate size. The rapidity of this oxidation is accelerated, or otherwise, by the nature of the water in which the ship may be floating. Mr. Harrison proposes to employ rotating bristle brushes worked by guides over the surface—the revolving brush is set in a frame, and made to pass over the surface, rotating as it goes, so that there is no rubbing motion; but the sides (not the points) of the bristles are brought into contact with the surface always at the same angle, and under the same uniform pressure and motion, so that while it must necessarily remove everything from the surface which bristles can remove, it is impossible for it to penetrate or even to leave a scratch on the surface itself, of which fact evidence may be had from reports of many successful experiments both in the navy, on the iron-clads, and also on many ships in the merchant service, the result being always the same—that the portion operated on was thoroughly cleaned, the paint remaining entire and uninjured.

**MANCHESTER GEOLOGICAL SOCIETY.**—The annual business meeting of this society was held in the Peter-street Museum, on Tuesday, Mr. Binney (President) in the chair. The Chairman said that at the last annual meeting the relations of this society with the Natural History Society were very uncertain, and the Council of the Geological Society did not know as to what they might have to do to find a place of meeting. Even now the circumstances of the two societies were not altered. The Geological Society could continue to go on without a museum, and thereby the more readily provide a place of meeting; but if they were to keep their museum they would require a building for the purpose, and whether the members were prepared to provide one he was not in a position to say. The difficulties under which that society laboured had been fairly brought before the members during the last two years. They met at that time because they thought it a very reasonable place, no rent was charged, ample accommodation was afforded, and when they first met there it was supposed to be probable that the Geological Society would not exist many years, and probable also that their museum would be an acceptable addition to the Natural History Society. It now appeared that the Natural History Society was to fail, and that their society was to find a resting place for itself. He believed it was intended that something definite would be done with regard to the Natural History Society at the end of the year, and until that time the Geological Society could do no harm by remaining where it was, for it paid no rent, and it had ample accommodation. During the past year there had been a considerable number of new members and several deaths, among the latter the society would deeply regret the loss of Mr. Joseph Whitaker, of Burnley, whose investigations of the millstone grit and limestone shales of the district in which he lived would have been of great value had he had time to complete them. The report of the Council stated that there had been 19 new members elected, six had retired, and four had died; the total number of members was now 192. The financial statement was favourable, and showed that there was 1932. In hand, against 1444. at the commencement of the session. The Council recommended the investment of 1000. in Birkenhead stock; 1071. was owing by 39 members for subscriptions, and of that amount 106. was owing by 10 members. It had been suggested that those who owed 41. and upwards should be struck off the rolls at once, but the Council thought it better to give those gentlemen another month's delay. The Chairman then stated what papers had been read to the society during the session, and read the curator's report. It stated there had been liberal donations, but nothing had been done with regard to the arrangement of specimens, because of the uncertain tenure of the society in that building.

The following gentlemen were then elected officers for the ensuing year:—President: Mr. G. C. Greenwell, F.G.S.—Vice-Presidents: Messrs. Aitken, Binney, Chatwood, and Andrew Knowles.—Hon. Secretaries: Messrs. John E. Forbes, F.G.S., and James Eccles.—Treasurer: Mr. Henry Mere Ormerod.

**GEOLOGICAL SOCIETY.**—The first meeting of this society for the session 1867-8 will be held on Wednesday, when the following paper will be read:—"On the Loess and Gravel Deposits of the Valley of the Somme," by A. Tylor.

**SOCIETY OF ENGINEERS.**—On Monday, the paper "On Mechanical Laws," by S. W. Worssam, Jun., will be continued, and discussion.

**LONDON GENERAL OMNIBUS COMPANY.**—The traffic receipts for the week ending Oct. 27 was 10,430l. 16s. 4d.



## Original Correspondence.

## THE COPPER TRADE.

SIR,—Being a constant reader of the Journal, you will, I have no doubt, be glad to insert a suggestion for the benefit of the copper trade. I have for a long time noticed that when iron nails, bolts, or screws are used in woodwork, that in the course of time the wood becomes rotten all round the iron, and the rot continues until it becomes useless. This may be observed by any of your readers when repairs are being done on wooden ships, barges, and boats, and even on the shutters, doors, and flooring-boards of cottages.

Now, I would suggest that the nails, bolts, screws, &c., for such purposes be made of brass, or, perhaps, what is known as bell metal, which would do better, being harder than ordinary brass. This would entirely prevent the rotting of the wood, for it is a well-known fact that if any oxidation of the metal takes place, the oxides of copper and zinc, or salts, produced will act as an antiseptic, and prevent the rot referred to; and the extra cost of the bolts, nails, and screws will be only too glad to make these things, if required.

Moel-y-Wyddja, Oct. 29. SNOWDON MINER.

## PROF. SMYTH'S REPORT, AND GEN. HAUPT'S MINING AND TUNNELING MACHINERY.

In his report upon "Rock-Boring Machines at the Paris Exhibition," contained in the Supplement to the *Mining Journal* of Oct. 12, Prof. Smyth so evidently fails to give proper credit to the machine and system of Gen. Haupt, that we wish to ask the privilege of making some reply through your columns. One would infer from reading his statement that, from finding steam used in the Exposition, he had concluded the machine is not equally applicable to the use of compressed air. He also fails to see that the drills have perfect freedom of direction, and that several working on the same frame may be readily placed in, or changed to, any positions that could possibly be desirable. He also speaks of its "unsteady working." There was scarcely sufficient pressure of steam in the United States section to work any of the machines, further than to show their motions. It is true that the machine he saw was the old momentum feed, and not the new screw feed, which had, however, been described and illustrated in the pamphlet, but not until recently has been embodied in a machine. He fails to give any notice to the results obtained in a series of carefully-conducted experiments, contained in the pamphlet to which he refers, and which results, upon being presented by Gen. Haupt before the British Association at Dundee, received the endorsement of such men as Prof. Rankine, and others of engineering distinction in Europe. As showing the estimation in which Gen. Haupt's ability as an engineer is held by those who would be best able to judge, it may be mentioned that the great engineer Stephenson paid him a very high compliment on the appearance of his first work on bridge-building, which was an elaborate and exhaustive mathematical investigation into the structure and capacity of bridges, such as had, perhaps, never before been undertaken. His more recent work upon military railways, published after he had organised and superintended the military railways of the United States, is, perhaps, at present more familiar to engineers, but it does not claim the merit of his former work. We wish to make no observations which are not entirely just. We believe that a new thing should clearly show its merits upon a thorough examination, and we are well aware of the difficult labours which devolve upon juries in conducting accurate and careful investigations; but the complaint has been frequently heard that the principal questions put to exhibitors were—How many have you sold? how old is it? &c.; and Prof. Smyth rather indicates that he would rely largely upon the answers to these questions. It would seem to be the true province of such a jury, in order to stimulate progress, which is the great object of such exhibitions, to find out and recognise new and meritorious inventions somewhat in advance, and aid them to success by suitable awards, not simply to recognise success, for in that case it is not needed.

If it will not be considered as too far trespassing upon your space, we should like to add hereto a summary of the advantages claimed for this system, and, from the many enquiries that are made, we think it will be of general interest to your readers. The apparatus and the whole system, of which the drill forms a part, was designed primarily to facilitate the most extended tunneling operations, such as Mont Cenis, in Europe, and the Hoosac, in America, the latter being under Gen. Haupt's immediate charge at the time when his system of tunneling was conceived. With a perfect familiarity with all known plans of tunneling, the problem attempted to be solved was chiefly the long delay caused by the removal of the debris, and permit the successive operations to follow each other without delay, and each to be performed in the most expeditious manner possible. Commencing at the period when a blast has been discharged, these operations are—the removal of the smoke, the removal of the debris, the readjustment of the tracks, the advancement and adjustment of the carriages and drilling-engines, the boring of new holes, the removal of the machinery, the erection of barriers, loading, and blasting. The progress in tunneling depends upon the rapidity with which these successive operations can be made to follow each other, and the time in which each can be performed. The greatest loss of time in ordinary tunneling consists in the removal of the smoke and the debris. In any system of mechanical tunneling in which the drills are mounted upon carriages which are advanced or retired by means of railroad tracks it is practically impossible to resume drilling operations until the debris has been removed. In consequence of these difficulties, it has been found impracticable in the Mont Cenis tunnel to blast more frequently than about once in eight hours, notwithstanding which the progress made has gradually increased, until it has attained a rapidity nearly three times as great as was possible by hand-labour. Gen. Haupt has overcome these difficulties by dispensing with a carriage altogether, and reducing the frame on which the drills are mounted to a single pair of hollow iron columns, placed 10 in. apart. These columns are furnished with screws, like jack-screws, at the ends, and derive their support from the rock itself at the top and bottom, or at the sides of the gallery. The columnar frame, on which as many as three or four drilling-engines can be mounted, occupies a space of only 8 in. diameter at the bottom of the gallery, and stands 18 in. from the face of the rock, so that nearly all the space is left unencumbered and free from the removal of material. A pair of columns, with three drills attached, weighs only 250 lbs., and, being so light, they can be readily lifted over the debris blown down by a blast, and set at work immediately, the operation being facilitated by means of a trussed lever, with a balance-weight, described in the *Journal* of Sept. 7. The smoke is removed by a vacuum-pipe, and, with other improvements in loading and blasting, it is expected that at least eight or ten simultaneous blasts can be made in 24 hours, with a progress at least four, and possibly five, times as rapid as hand labour can accomplish.

General Haupt has demonstrated that in extensive tunnelling operations, where a gallery is driven 10 or 15 ft. wide, it is not only practicable but highly economical to use steam as a motive power, and to generate the steam within a few feet of the drilling engines to which it is applied, but in ordinary mining operations steam is not recommended. In such cases compressed air is more convenient, and the machine is equally applicable to its use. If the power provided for other purposes is in excess of the requirements, as is generally the case where the large Cornish engines are employed for pumping, a portion of the excess may be employed to compress air, which may then be carried to any required distance in pipes, and utilised both in furnishing power for the drilling engines, and for ventilation. When levels are driven from a shaft, the air compressor may be worked at any elevation, by an arm attached to the pump-rod. In sinking shafts the compressor can best be placed on the outside, and the air conveyed down the shaft in cast-iron pipes, terminated by a portion of india-rubber hose, with which the attachment to the drills can be conveniently made.

In driving galleries in mines, it will be found convenient to dispense with the trussed lever for handling the drills, and advance and retire the stand by means of a light frame of iron mounted on two wheels, which may be run upon the bottom of the gallery, or upon rails, as shall be preferred; but in any mode of operation the co-

lumnar frame should be retained, as it affords facilities for securely and promptly fixing the drills in the most rigid manner, deriving its support from the rock itself, which is far superior to any frame that can be devised, and it occupies no part of the space required for other operations.

In sinking shafts the columnar stand would be raised and lowered by means of the hoisting apparatus, and the stand fixed in a horizontal position, by fastening it to the sides of the shaft.

It will be understood, of course, that the mode of mounting is independent of the construction of the drilling-engine itself, and may be varied at the pleasure of the operator; but it is believed that the columnar frame possesses advantages superior to any other plan that can be devised, which the light weight, short length, small size, and portability of the drilling-engines, renders them applicable in any situation, and for any mining operation to which any machinery whatever can be applied.

BLANCHARD AND MCKEAN,

3, Rue Scribe, Paris.

## NEW BLASTING-POWDER.

SIR,—The interesting experiments referred to in last Saturday's *Journal*, as having been recently made in America, with a new explosive compound, were evidently made with "Dynamite," or Nobel's Patent Safety-Blasting-Powder. This powder is Mr. Nobel's latest invention, and as we are the sole consignees in England, we venture to forward you the following particulars respecting it. For the safety attending its use it stands altogether unrivalled, since it will not explode from a spark like ordinary gunpowder or gun-cotton, nor from concussion alone, like nitro-glycerine, however severe such concussion may be, but it requires the combined effect of the shock and fire, occasioned by the explosion of a strong percussion-cap, or a small charge of gunpowder, to explode it. Your description of its extraordinary explosive effect, and of the mode of firing it, is substantially correct, but the following is a more detailed statement, and will, we trust, prove of sufficient interest to such of your readers as are engaged in blasting operations to justify us in asking you to insert it in your *Journal*.

Dynamite is a light-coloured powder, not glazed or granulated, like ordinary powder. If lighted with a match or fuse, it will burn in any quantity, without exploding, so that the ordinary accidents, from the dropping of a match, or the accidental lighting of a train in blasting open cracks or fissures, and from which so many lives are annually lost in quarries and open ground blasting, cannot occur from its use. It can be used either in a loose state, or compressed into cakes or cartridges, and for underground workings we strongly advise the latter. When so compressed it will resist the influence of water for a considerable time, even without being enclosed in paper or any waterproof material, and may be fired in damp holes, or under water. The mode of firing is by affixing a strong percussion-cap firmly on to the end of an ordinary fuse with a pair of nippers, so as to ensure its explosion when the fuse is fired, and then to insert it in the dynamite. It is a mistake to suppose that the cap is punctured with a bradawl, though one may be advantageously used to make the hole in the compressed powder, into which the percussion-cap at the end of the fuse is inserted. To quote the words from your notice—"Nothing more is required than to fire the fuse to produce a result that surprises all who witness it, and are familiar with the process of blasting." The harder the rock the more extraordinary the effect, and it will rend to pieces either cast or wrought-iron, or the toughest teak timber. What is most extraordinary is that no tamping is required to produce these results, though light tamping may be used, and, possibly, in some cases, is desirable. The simplest, and, perhaps, the most surprising experiment, is to place a small quantity of the dynamite, (say)  $\frac{1}{2}$  oz., on the ground, and insert the cap at the end of the fuse into, and light it. The report and effect of the explosion are perfectly astonishing. The great rending power of this powder, the facility with which it is charged, and the safety attending its use, will, we doubt not, cause it to be more generally adopted where blasting operations on an extensive scale are carried on.

Carnarvon, Oct. 28.

WEBB AND CO.

## COAL-CUTTING MACHINERY.

SIR,—I read with much interest the letter of Messrs. Firth, Donisthorpe, and Co. in last week's *Journal*, and was glad to learn that the coal-cutting machine has been brought to so much perfection; the more especially as, however unjustifiable the assertions of "Collier" may have been, it is a very general impression amongst practical men that coal-cutting machines were a failure. Messrs. Firth and Co. now offer to disprove this, and the handsome offer they make must convince all that they have thorough confidence in the machine. Now, as it is possible that "Collier" may not accept their challenge, will you permit me to enquire through the *Journal* for some particulars relative to their machines, and also in what colliery in the Wigan district I can see one at work? I am sure there are but few colliery owners who would delay the adoption of hewing machines after their worth is demonstrated. The difficulty of dealing with colliers has increased to such an enormous extent, that the introduction of machines of some kind has become a necessity, and if Messrs. Firth, Donisthorpe, and Co. only show that they can offer a machine which will do as much work per fortnight, permanently, as can be done by hand labour, they will have no cause to regret "Collier's" letter, even if it annoyed them at the time.

Perhaps Messrs. Firth, Donisthorpe, and Co. would not object to state the results of a couple of complete months' working—for July and August, we will say—so as to enable practical men to judge for themselves. Inventors too often make statements upon results obtained at a given rate, and estimate what they could do, whilst coal owners generally wish to know what they have done. I have no reason for selecting July and August, beyond the desire to prevent the possibility of Messrs. Firth, Donisthorpe, and Co. being charged with selecting months particularly lucky in their working. Will they state for those months the number of yards undercut 3 ft., the thickness of the seam worked, the number of men employed, nature of seam, motive power used (air or steam), and cost per ton of the coal got at the pit's mouth; and, lastly, the selling price and royalty of the machine used? For my own part, I do not see the great objection to steam that some have spoken about, but I admit that there is the advantage with air that it aids ventilation.

In conclusion, I may say that Messrs. Firth, Donisthorpe, and Co. will find no one in the Wigan district at all desirous of depriving them of the full pecuniary benefits derivable from their invention, whether they be protected by patent or not, but we all want a machine which will work well, continuously, and economically.

Hindley, Oct. 28.

A. B. C.

## SAFETY-CAGES, AND OVER-WINDING—No. II.

SIR,—It is impossible to avoid noticing in connection with this subject the question of Winding-Engines. It was, we believe, until very lately generally acknowledged in the North that the best and safest winding-engine was the upright condensing-engine (or high pressure), cross-geared with four mitred valves. But of late a great innovation has been made in this respect, whether for the better or worse it is rather difficult to determine. The engine lately patronised in many cases when the shafts are of moderate depth is a double horizontal one, with link motion, and a slide-engine. It is, of course, of the greatest importance that the engineman should have complete command over the engine, and also that he should feel or see instantly if an obstruction takes place, otherwise serious injury, and perhaps loss of life, is almost certain to take place; and this he could do with the old engine, providing the said engine had not a good deal of power in excess of that required. It is obvious that it is not desirable that engines of this kind should have much excess of power. With the slide-engine alluded to, it is not possible that the man can have the same command of the engine—at any rate, this is the view taken by many colliery engineers—and hence the danger attending the use of such engines is much greater than with the old engine referred to. The double horizontal engine is more like a hauling-engine for a railway than one adapted for winding up shafts with the greatest precision, nicety, and safety. There is no doubt that those engines are capable of doing a great deal of work, but it ought to be kept steadily in view that a winding-engine, while having ample power, ought to be capable of being stopped or started very readily, and also worked with the greatest precision at any speed, however slow.

With respect to Safety-Cages, there can be no doubt as to the necessity of their use, and although they have not yet been generally adopted, it is only a question of time, and they must get gradually into use. The cages lately brought prominently forward here are—1. Broadbent's Safety-Cage;—2. Harper's Safety-Cage;—3. Calow's Safety-Cage. Broadbent's apparatus is capable of being applied either to wooden slides or wire-rope conductors, and it has, we believe, been subjected to pretty severe tests, with entire success. The effect is produced by means of weighted eccentrics or tumblers, and these are held up by small chains, which are attached to the ordinary winding chains of the cage. This does not differ from the principle or mode of action which has been adopted in the great bulk of safety-cages, and although it (that is, any cage working on this principle) may, by great care, be got to work pretty well, yet this serious objection has been made, and proved by actual work to have much weight—that, in the ordinary course of working, the eccentrics are apt to get into contact with the slides, and injure them, and this, it must be admitted, operates very much against the general introduction of this kind of safety-cage.

M. E.

## SILVER AND TIN IN MISSOURI, U.S.

SIR,—A new mining era certainly begins to dawn on Missouri. Coupled with the recent discovery of tin in the south-east Missouri, I have just received very reliable information of the discovery of silver in the south-west portion of Missouri, in Cedar county, located near the south-western boundary of the State, and about 50 miles north-east of the far-famed lead mines of Newton county. It would appear that as long since as 1861, and just prior to the breaking out of the civil war, silver was known to exist in this locality, and, as they then considered, in paying quantities. Owing, however, to the war, and the very frequent visits of the Southern army into this particular portion of the State, but little was done towards its development.

The first discoverer of silver in this part of the world is said to have been an Irishman, but from the means adopted by him in making the discovery—the witch hazel—I should say he was a Cornishman. The mining so far done, however, is but very limited, the deepest shaft yet sunk not being over 20 ft. deep, in which they struck the lode at about 17 ft., and the prospects are so encouraging that the owners intend to make a thorough test of the matter, the result of which I will communicate to you hereafter.

The discovery of tin is still attracting great attention, especially among speculators. Messrs. Moody, Michel, and Co., a wealthy firm of this city, to whom, I may say, the utmost credit is due for the practical mode adopted by them to prove the actual existence of tin in paying quantities, are constantly making tests of the ores taken from their mines; and, with the view of bringing the question to an issue, they have expended several thousand dollars within the past two months, and among other arrangements introduced by them for this purpose is the Cornish buddle. Dr. Goulding, of this city, has just informed me that he made an assay of a selected piece of ore taken from their mines at a depth of 15 feet, and that it gave a result of 19 per cent. of tin, which tends to confirm the opinion formerly expressed by me—that depth is all important to make a paying tin mine in Missouri.—*St. Louis, Missouri, U.S.* R. W. DUNSTAN.

## THE MISSOURI (U.S.) TIN DISCOVERIES.

SIR,—A block of tin weighing 17½ lbs. was exhibited at the Missouri State Agricultural and Mechanical Fair, and a special premium of \$100 awarded to Messrs. Moody, Michel, and Co. After the exhaustion of an almost endless amount of patience incident to the want of the most simple and ordinary appliances necessary for the preparing and dressing of tin ores for smelting, two blocks of tin have been produced from the ores taken from within a few feet of the surface of Messrs. Moody, Michel, and Co.'s mines in Madison county, one weighing 17½ lbs., and the other 6½ lbs., the largest being the one for which they were awarded the special premium.

The smelting of these blocks was done by Dr. Goulding, of this city, who during a short residence in Cornwall acquired some practical experience in this branch of metallurgy. I scarcely need add that no small amount of interest was manifested in this (to those connected with the tin interest) triumphant exhibition, it being the first block of tin ever exhibited as the product of the United States, and although it was only placed in the fair just one day previous to its closing, yet the directors, in a most commendable and liberal manner, awarded the above premium. Having spared no pains in investigating all the circumstances and many difficulties connected with the producing of these blocks, I can with great confidence assure your numerous readers that at least 6 per cent. of pure tin was obtained from the crude surface stuff, and this in what might be termed a practical working manner, under many difficulties. The operators claim, however, a much higher percentage, but I am disposed to understate rather than overstate, and, if possible, avoid bunkum, and be content with 6 per cent. for surface ores, feeling as I do that a little further investigation will establish beyond all doubt the fact of the existence of tin in Missouri in paying quantities, and at the same time open up a new field of operations both for the capitalist and the miner, and especially for the surplus mining population of Cornwall. I have long since seen that the English mining capitalist could make investments in the State of Missouri to better advantage than in almost any other mining country, as Missouri possesses all the advantages of intercommunication with a mining region of 18,000,000 acres, and yet for many explainable reasons but little practical mining has been done, and I question if there is a shaft in the whole of Missouri 50 fathoms deep, yet millions of pounds of lead and other minerals are annually produced in the State, and nearly all from surface diggings. While this system of mining has proved most remunerative, how much more advantageous could it be made by a proper and scientific system, such as the English have so long stood pre-eminent for, and such as they would introduce into Missouri provided they would only become interested in our mining wealth.—*St. Louis, Missouri, U.S., Oct. 14.* R. W. DUNSTAN.

## THE PROGRESS OF MINING—AS A SCIENCE, AND SOURCE OF COMMERCIAL WEALTH—No. XIX.

SIR,—We have discussed various phases of mining, and it is very encouraging to notice that in the West there is a spirit stirring that cannot fail to tell emphatically on the destiny of this branch of commerce. I shall again allude to various mines in the western districts, as showing steady signs of success, but my object at present is to deal with a class of mines not noticed generally in the classification of mining property—that is, the dormant mines. During my journey in Cornwall I was struck with the great value of some of the dormant mines, and in my mind I selected Penberthy Crofts as an exponent of the class. The Penberthy Crofts Mines are situated upon about the eighth lode in tunnelling northward from the south coast, beginning at Cuddan Point, upon it have been worked Wheal Prosper, which is still working, and its prospects are answering to its name; Trewarthen Downs, now idle; Crystal, idle; Penberthy Crofts, idle; Enny Wheal Virgin, idle; and Gurlyn, idle. These idle mines occupy upwards of a mile in length along the surface of one of the finest lodes ever mined in the western part of Cornwall. A few years ago I was in possession of notes made by Captain Abalom Francis, the manager 45 years ago, which went to prove that the value of the bargains generally along the lower section of the lodes was from 20¢. to 30¢. per fathom for tin and copper. The facilities for working this ground, so valuable for tin and copper, are now much greater than ever they were. At Enny's Wheal Virgin there is a good engine-shaft sunk to the 150 fathom level. By placing a powerful engine on this shaft, taking out the water, and driving a large tunnel under this line of ore ground, I have no doubt for 1000 fathoms long this lode would produce 20¢. worth of ore to the fathom, or 20,000¢. for 1 fathom in length on the line of the lode. It would be fair to consider one-fourth part of this as profit, which would be equal to 60,000¢. per annum.

Now, the capital required to produce these results would not exceed one year's profit. For I propose to place all the machinery in one spot; these to consist of one of the most powerful and perfect draught-engines that could be made, together with a powerful winding-engine, and a powerful mill for reducing the ore stuff. I would command all the ore ground by a tunnel, (say) 12 ft. square, driven



from the engine-shaft along the line of the lode the whole distance that the ore ground extends, forcing in air, and doing all other things necessary to ensure success in carrying out such a large undertaking. Although this would be a large and somewhat novel plan of mining, in the face of the facts of engineers boring tunnels through the Alps, and doing other gigantic works in the western ranges of America, I do not think such a scheme would be too formidable for the acknowledged talents and ability of our Cornish engineers and miners; and if my estimates prove correct, and they were taken from the memoranda of an excellent judge of mining, the 80 fathom section of the ore ground under the bottom of Penberthy Crofts, which would be thus drained, would be worth 1,600,000*l.* for tin and copper, and would give a profit of at least 400,000*l.*

I was talking to a skilful tributer as to the value of this ground the other day—Mr. Veran James, of the Trevelyan Arms, Goldsmithy. He said—"For the last fourteen years I have been working the ground in this deserted run of old mines at the surface, by merely digging the tin and copper out of the backs of the lodes by mere costeaning, surface shafts, and raising from the adit, and I have always made very good wages, after paying the lord his royalties." With such evidence as I have given it is almost impossible to doubt that the great riches now buried in the rock here might be brought to the surface, not only to the advantage of the speculator, but for the benefit of one of the most deserving races of men that ever contributed to the fortunes of Great Britain—the hard-pressed and much-suffering Cornish miner. In dealing with the backs of the great Tunnel, I think I would make inclined rises in the ore ground at intervals of 20 or 30 fathoms, on an average of 45°, so that the orestuff would come down without shovelling into passes prepared for conveying it into the railway wagons. M. F.

#### SLATE TRADE IN NORTH WALES—No. VIII.

SIR.—The usual method adopted for developing and working mineral properties is receiving increasing attention both from the scholar and practical mineralogist, with a view to render the working of such undertakings more economical, and thereby increase the facilities for making metallic operations more profitable to the investor. Considering the improvements to this end during the last ten years, and the rapid strides which are now being made in the same direction, no sane person will question the importance of still further testing, experimentally, agencies which are the ripened fruit of eminently practical and scientific researches. It would be extreme folly to suppose that any new principles or modern technicalities, however valuable, have been adopted all at once. Old superstitions and biased notions had to be fairly combated with and conquered before the new state of things could be successfully introduced and established. The same difficulties are ever and anon met by the pioneers of reform in every art—in fact, no experienced person undertakes the task of studying with a view to perfect systems of merit without making large provision for maintaining an irrefutable position, as well as securing public favour. History furnishes us with extraordinary revelations upon this subject. In nine cases out of ten where failure has disappointed the aspirations of the worthy reformer, either his funds have been too limited to admit of his continuing the contest, or certain conflicting influences have operated through secret channels to dissuade parties, financially interested, from yielding to a philosophy which contains the elements for making war upon past extravagancies. This latter source of opposition, with its numerous complications, is so formidable in a great many instances that, however conclusive the arguments advanced in favour of altering and modifying known rules (should such a course be calculated to expose the short-sighted policy of past inconsistencies), every device is made use of to counteract and nullify the means employed to show the incalculable value and the paramount importance of testing the proposed alterations. I am sorry to say that the description given has borne down very considerably upon slate quarry undertakings, but, as a rule, where this has taken place either the theoretic management has entertained such deep-rooted respect for its own remarkable judgment for discerning the cause of change, &c., that he cannot be convinced of the surpassing importance of the proposed alterations, or the local manager (though, in a degree, a practical man) resists any and every plan which differs from that pursued by his predecessors. Again, it is a thing too common that the agent is compelled to act in accordance with the dictation of some inexperienced superintendency, and thus actual experience has an appointment only in name. There are instances where the agent is allowed unfettered control of the works, and it is well for quarry enterprise that it is so, as the number which has already, though many of them unjustly so, been placed to the failure account have greatly deterred the progress of sound and valuable properties.

Let us refer again to the letting of slate bargains, and follow their working closely throughout their term of contract, we shall then quickly perceive how rockmen and slate-makers take advantage of incompetent officials, at the great expense of the proprietary. It has often been remarked at directors' meetings that they cannot understand why the poundage paid by them should be so much in excess of that paid by other quarry proprietors; and, after discussing a subject foreign to their judgment, they decide on a change of management. They soon find a substitute for the practical management in the person of a scholastic, or some important party in whom they have great confidence; he soon appears in the new capacity, and surveys the different parts of the works with an air of self-sufficiency. Meanwhile, the workmen are taking notes of him, and it does not require a long time to enable them to determine whether he is master of the situation.

On entering upon the duties of letting he, of course, will (for a short time) allow himself to be guided by the prices of his predecessors, which he can easily obtain by referring to the office books. For the future his principal study will be turned towards the reduction of the "poundage," the chief cause of complaint; and now he begins to feel that in order to secure the respect of the workmen, and at the same time maintain a fair amount of consideration for the board of directors, he has for the time being enough to engage his most studious reflections. After two or three months have passed away, he commences to try his hand by degrees at the poundage question, but long before this the quartermen have expressed to each other the fact of his utter ignorance of the duties of his position, and are not, therefore, surprised at the reduction now introduced, having anticipated it. Most certainly the agent and directors will take to themselves credit (where none is due) for having succeeded in letting bargains in a manner that will soon bring about a supposed reformation throughout their entire operations. Can it be thought for a moment that the men will get any the less wages on account of this change? At first sight there may appear no alternative; yet it can hardly be conjectured that men who know their business would submit to the reduction, did they not see how to avoid suffering from the alteration imposed. For the first, or it may be the second, month the reduction was not become oppressive, but if continued the men will most strongly resist it, as there is a limit to their means of protection, which I will consider in my next communication. JOSEPH KELLOW.

#### THE FUTURE PROSPECTS OF CORNISH MINING.

SIR.—At this season of the year business in all mining matters is invariably dull, but the more so at present owing to the unsettled state of things in a political point of view on the Continent. Whilst distrust exists to so great an extent, no one will trade to any extent, but buy only from hand to mouth. It is quite out of question that the deep and expensive mines, particularly such as are producing low-quality minerals, can pay at the present low price of copper and tin, compared with the prices obtained for these metals for several years previous to the panic of last year. A difference of at least 20 per cent. in the price of tin and copper tells immensely on mines labouring under heavy expenses, where the mineral is of low percentage, and the water charges heavy, and particularly where the royalties or dues are so very high. Whether copper ore or regulus sells at Liverpool or Swansea at 12*l.* or 14*l.* per unit or at 18*l.*, or the standard of copper in Cornwall is 102 or 145, and tin ore 50*l.* or 90*l.* per ton, makes all the difference. Added to the large importations of ores and metals from abroad, the heavy failures of firms in the metal trade of late must have caused large quantities of stock to be thrown on the market. It will doubtless be conducive to the prosperity of mining if our greatest and richest mines would throw a less quantity of their produce into the market for a few months; but with mines just paying their way this cannot be expected. Many such mines are compelled to increase the quantity rather than continue making calls. No part of the business in connection with mining operations is so annoying or galling to directors or managers of mines as the making of calls.

Every pursuer or manager feels the weight, as if it all rested on himself. And so it does in a great measure. Everyone accustomed to attend meetings knows this to be fact. Besides, the depreciation of the stock to all concerned is galling enough, though the vendors are to pay dividends nothing but compliments and smiling faces are to be found. A MINER ADVENTURER.

#### EAST WHEAL RUSSELL.

SIR.—The information elicited at the meeting must be highly interesting and satisfactory to those who have so long held on to East Russell, with the firm belief that discoveries of even greater value than the celebrated Tom's pitch will be made. It is thought highly unlikely that a set in which so wonderful a run of ore (worth, they say, over 300*l.* per fathom) should not contain many more such. Setting aside the slight symptoms of jealousy and ill-feeling caused by a change of management (which, after all, are but natural), the fact remains that the mine stands among the foremost on the list of those at which a valuable discovery is likely to be made very speedily.

The old sayings that "good mines make good captains," and "new brooms sweep clean," are, perhaps, applicable to the present state of affairs; but, at the same time, it is clearly one of those strange but frequent coincidences in mining which has caused a great improvement in the position and prospects during the last few months. It is cheering to find that since the meeting the new lode, in the 88, is reported worth 15*l.* per fathom; and, looking at its position and mineral properties, sanguine hopes are entertained that a little further exploration upon it will lead to something particularly good. At all events, valuable ground is being laid open by every strike of the pick.

Without entering into the undecided question as to previous management, we are satisfied that now, at any rate, economy and vigorous enterprise are combined, and that East Wheal Russell stands in a position rendering it one of the most interesting and hopeful speculations of the day. CROSS-CUT.

#### NORTH TRESKERBY MINE.

SIR.—In the Notices to Correspondents of Oct. 12 there is a paragraph purporting to have been written by a shareholder. If a shareholder at all, and I rather doubt if he is, he surely would have not only written the truth, as regards the financial position of the mine, but all the truth. I can, therefore, only imagine his object to have been to damage the mine in the estimation of the unwary shareholders. He speaks of the ore sold on Oct. 2 as having been credited. Why did he not say tin ore, 107*l.* 7*l.* 3*l.*? If he had, most people acquainted with mining would readily have known that nearly all the cost upon it must have been included in the cost to the end of August. And, again, why did he not say, for the information of your numerous readers, that the last credit for copper ore against the cost to the end of August was for copper ore sold on July 25, the bills for which were due in cash before the last account, unless he wanted to mislead? And, further, the shareholder, if he did not wish to depreciate the mine, would surely have said that on Sept. 26 there was a sale of copper ores amounting to 174*l.* 12*l.* 10*l.*, to come to the credit of the next account, and some tin. Such a note would have shown plainly enough that taking the average of the four months' cost to end of August the profit for September and October will be from 200*l.* to 300*l.*. The mine with a credit of 274*l.* 3*l.*, without any further quantity of copper ore to meet the costs of September and October, would be in most deplorable case; but when it is known that we have to add to that sum 174*l.* 12*l.* 10*l.*, and tin, with the above credit balance, (say) together 2100*l.*, out of which we have only the cost of September and October to come, will leave, in all probability, at the next account a credit balance of 500*l.* to 600*l.*. B. MATTHEWS, pursuer.

#### OLD GUNNISLAKE MINE.

SIR.—Among conflicting statements of the success of the re-working of this old mine, it is pleasing to be enabled to report favourably of it. By well-arranged pitwork the old mine is drained to the 61 fathom level, under the deep adit at Michael's engine-shaft, and the work in clearing the several levels is progressing favourably. A 21*l.* level under the deep adit is cleared westward on the Green lode, and the end now in work. The lode in the end is 15 inches wide, producing beautiful grey and green carbonyl of copper, by assays made yesterday yielded 25 per cent. of copper, of which the lode will now produce 14*l.* ton per fathom, and may be fairly valued at 25*l.* per fathom. The 31*l.* level, on the lode, will be cleared in the course of a little time, when an equal discovery to the above is anticipated.—Gunnislake, Oct. 31. CORRESPONDENT.

### Meetings of Mining Companies.

#### CHONTALES GOLD AND SILVER MINING COMPANY.

The second ordinary general meeting of shareholders was held at the London Tavern, Bishopsgate, on Tuesday, The Right Hon. Earl NELSON in the chair.

Mr. TRURAN (secretary) read the notice convening the meeting. The report of the directors stated that the shareholders have been already informed, through the published report of Mr. Truran, of every particular respecting the mines and machinery, from which the directors have been expecting returns that should now fully cover cost. They regret to say that these expectations have been disappointed, through the unforeseen visitation of cholera at the mines, which has, unfortunately, been fatal to several natives, and so dispersed the remainder as to render it impossible, for the present, to find hands sufficient to meet the requirements necessary to supply ore to the mills. The most stringent sanitary precautions have been adopted by Dr. Robinson, the medical officer at the mines, to prevent the further spread of this disease, and he is in hopes it will soon pass away. He reports that in the districts which surround the mines it is much mitigated, and, in many places, it has quite disappeared. The information originally given to the directors of abundant and cheap native labour is not corroborated by practical experience. The directors have, therefore, instituted enquiries respecting the possibility of importing labourers, in order to obviate the uncertainty of obtaining natives, and they are informed that large numbers can be got from San Francisco at wages not exceeding those now paid to native labourers there. The board have, therefore, sent out instructions by the last mail to engage a certain number of Chinese under special terms, which, if approved, will, it is hoped, place the development of the mines upon a more certain footing. The directors have appointed Sir Charles Kirkpatrick as resident commissioner at the mines, and with the assistance of Mr. Burgess, chief cashier, and Capt. Paul, they have every expectation that the good system of management inaugurated by Capt. Hill and Mr. Truran will be continued. Finally, with regard to the mines, the directors have no doubt of the yielding being ample, and they consider the existing plant adequate to give returns that would pay current expenses, but they cannot conceal from the shareholders that failure in the supply of native labour has upset these calculations, and may, therefore, prevent the realization of profits so soon as was expected. The directors, however, have the greatest confidence in the value of the property, and will leave no effort untried to overcome every difficulty, and trust eventually to obtain success. The mines are well stocked with materials for every purpose, and every description of cost is close paid up.

The CHAIRMAN said the shareholders would readily understand, after what was stated at the last meeting, that it was a real disappointment to him to say that instead of being able to state, as he had hoped, the returns from the mines were at least equal to the costs, he was obliged to tell them there was some prospect that the directors would be compelled to make another call. It was right that the directors should keep nothing back from the shareholders, and so long as he occupied his present position nothing should be kept back—but that was the feeling of every member of the board; and upon the question of call, he might state the directors would try not to make it until actually obliged, and they would wait till the mail brought the information, because if the cholera had abated, and the natives had gone back to the mines, there was every reason to believe the months' returns they had expected would be pretty well made up, although, perhaps, not entirely in the first month, because the want of labour was felt at the beginning of that month. It was right to put all the worst parts of the case first, and, therefore, on the other hand, he might inform the meeting that the directors had gone most carefully into the matter, and they were convinced that the reason assigned was the real and the only reason for the failure of their anticipations. Upon that point there was no doubt whatever, and he thought the question which Mr. Truran, who had just returned from the mines, would gladly answer would tend to assure all that they possessed a really valuable property, and that the machinery already in action was sufficient to produce returns equal to the costs. Their real and only difficulty was a want of labour; but he must not be misunderstood in this, because he did not want to reflect upon those who stated there was an abundance of labour to be obtained. There was labour to be got, but they did not want to be misled, for panics seemed to occur amongst these natives. The first was in consequence of the epidemic of cholera, and the second was in consequence of the object of the directors, therefore, to secure a fixed and reliable staff, for by the laws of the country they were obliged to continue certain operations at each mine, or otherwise they ran the risk of their being forfeited, and it was impossible for their staff of English miners, numbering about 30 men, to carry on workings in the sense defined by the laws. Under those circumstances, the directors considered it perfectly right, although labour might flow in for the next few months, to secure some other labourers. The first consideration of the directors was how far such a step might affect their relations with Nicaragua; they had taken information upon the subject from Gen. Martinez, the ex-President, who stated that there is not only no law against it, but that he believed the introduction of Coolies would be of great benefit to the State of Nicaragua. It was thought they could easily be obtained from San Francisco, and at a comparatively small expense, and with such a reliable staff they would be able to bring out the wealth of the mines. The directors had written to the Government of Nicaragua, and they hoped the application would be successful, to allow the whole of the company's mines to be held as one *perpetua*, by which they would be enabled at any future time to concentrate their labour in the particular direction deemed most desirable for the company's interests. Since the report of the directors was published, he noticed a remark was made in the *Mining Journal* that there were 12,000*l.* arrears of call, that was up to the end of June. The fact was that out of the called-up capital there were only 1100*l.* in arrears, of which 600*l.* was accounted for by the calls on Capt. Paul's shares, which were set off against his salary, so that the actual arrears were under 500*l.*. As to the 12,000*l.* arrears, the directors were obliged to put it in the accounts, for although the call was made it was not then due, so that, instead of being so much in arrears, there was an amount of something like 1000*l.* paid before it was due. It was satisfactory to find that the calls had been put up so well, and that the directors had been so well supported by the shareholders. It would always be his desire, as it would be that of his co-directors, to put the shareholders in possession of every item of news that came forward by each successive mail, so that shareholders should not be led away by whatever people thought proper to put forth. The directors had never attempted, and never would attempt, to keep back anything from the shareholders. As he had already said, Mr. Truran would be glad to answer any enquiries or afford what information shareholders might desire. He then moved that the report and balance-sheet be received and adopted. Mr. G. NOAKES, F.R.S. (manager) seconded the proposition, and he did so as one of the largest shareholders in the company, and not in his official

capacity. The directors, no doubt, came before the shareholders upon the present occasion under a great disappointment, not only to themselves, but also to the shareholders, for the results they had so confidently anticipated had not been achieved. But when they looked at the facts of the case in a fair and not partial light, they would find that this non-achievement of results had not been caused by any depreciation in the mines, so far as they could learn, but by a visitation of Providence, over which they neither have control nor could they have averted it. The directors had told the shareholders, and there was reason to believe it, that the machinery now erected at the mines and in course of working would have been sufficient to make returns to meet the present costs. He had told them upon a previous occasion that they must get adequate power to make large returns and profits, and everything that had been done and was doing was with the object of arriving at that position. He would not now recapitulate the immense and unforeseen difficulties that had been encountered and surmounted; some faults may have been committed, and some expenses might have been saved, but it was very easy for anyone to be wise after the event. Looking at their circumstances altogether, there was nothing at all to be deplored, for when this unforeseen visitation had passed away they would be enabled to get that labour which was necessary to bring the mines into a full course of working. It was true their costs had been large, and larger than was originally anticipated, but he stood there to assure them that his feeling was that they must not consider costs. He believed now—fully believed—that they possessed a very valuable property, but that it required to be developed, therefore they must find the means to develop it, let the cost be what it would. (Hear, hear.) His experience had taught him to know that mines could not be proved without proper and full development, and that returns and profits could not be realized without effective and adequate machinery were erected. There were many things he might desire to say, but he would sum up the whole in this—the directors were honest in their endeavours to bring this property into a state of full development, and they believed, by the measures taken, the results achieved would be perfectly satisfactory to all concerned. Therefore he would induce upon the shareholders to have confidence, and not to despair because this visitation upon the so unexpectedly come upon them. He had the greatest confidence that when the machinery and all the necessary appliances were erected and in course of working, profitable results would be realized. (Hear, hear.)

Sir THOMAS TANCRED complained that the balance-sheet had been made out in such a way that the current expenditure could not be distinguished from the outlay of capital.

Mr. DARBYSHIRE wished to ask one or two questions, with the view of settling certain points right before the public, and the first was—Were they to understand that the machinery already erected and in course of working was equal to the production of returns sufficient to meet the costs?—Mr. NOAKES replied in the affirmative, presuming they had labour to do the necessary work. Mr. DARBYSHIRE wished to know if they were to understand that the English machinery was erected?—Mr. NOAKES wished to be distinctly understood. The machinery to which he referred was that which had been in course of erection during the last 12 months. It was now erected and at work, and would have been able to have made returns equal to the costs, provided there had been sufficient labour. As to the additional machinery from which profits were to be realized, he thought to erect the whole of it might take 12 months or more, but, of course, every month there would be an addition made to the present machinery, by which progressive returns would be made, until they arrived at that period when the mines would be opened up to keep 80 cups in work. Mr. DARBYSHIRE asked if the directors had received any communications respecting the securing of a port upon the lake, and as to a provisional contract having been entered into by Mr. Truran for the purchase of a port?

Mr. TRURAN said he had studiously avoided entering upon matters concerning the Central American Association; but since the question had been publicly asked he was bound to reply. He entered into a provisional arrangement for the purchase of the port in question for a certain sum, subject to be signed by the owners' brothers, who were parties to the arrangement. He left in March with Capt. Hill for Greytown, and upon his return he learned that the owners declined to enter into the arrangement. He subsequently learnt that the whole estate, including that port, was purchased by Captain Pim, who was then in Nicaragua.

Mr. DARBYSHIRE wished to know when Mr. Truran's letter to the board, in the effect that the provisional contract had been made, was received, and who were the directors present when that letter was read?—Mr. NOAKES (referring to the minute-book) stated that the letter was read on March 26, and that the directors present were Messrs. Bowen, Stanton, Raynolds, and Noakes.

Mr. TRURAN, replying to further questions, stated it was about the end of April, or beginning of May, when he first received information that it had been purchased over their head; and he had it from Capt. Pim's own lips that he had bought the estate and port. He then entered into explanations with reference to other matters of detail, about which there had been some difference of opinion between himself and the Central American Association. He stated that the assertion which had been made, that the mails cost 800*l.* per annum, was entirely erroneous, for the whole did not exceed 400*l.* per annum, and was not taken all the way to Greytown, and often was only a part of that distance.

Mr. DARBYSHIRE said it had been reported by those connected with the Javali Mine that the Chontales Company possessed no land nor timber near the mines.

Mr. TRURAN said they possessed 1100 acres of thickly wooded land, immediately adjacent to the mines, independently of their own plantations.

Mr. DARBYSHIRE said his questions tended towards a motion which he intended to make, to the effect that Mr. Bowen be requested to resign his seat at the Chontales board, he being a director of the Central American Association, and also of the Javali Mining Company. Ever since the establishment of the Central American Association anything that was likely to benefit the Chontales Company was always forestalled by the Association, or those connected with it. And Dr. Seemann borrowed one of the Chontales officers, and after having kept him for three weeks, instead of that officer reporting himself to Capt. Paul, he threw over the agreement with the Chontales Company, and took the management of the Javali Mine—he referred to Capt. Holman. Why, the negotiations for the purchase of the Javali Mine were carried on by one of their servants, and bought by a man in the pay of the Chontales Company. He thought it more than probable that when Mr. Truran's letter was read, with an intimation from the board to secure it, that the fact was communicated to Capt. Pim while he was in Nicaragua. He (Mr. Darbyshire) did not say it was so, although it was quite possible.

When Dr. Seemann came to this country he brought a report that the machinery sent out by the Chontales Company would never get to the mines, and when it did get to the mines Dr. Seemann said it was not suitable; and after that Dr. Seemann said he knew nothing of mining machinery. But it was such reports as these that had brought down the price of the Chontales shares in the market. And Mr. Pollock, presiding as Chairman of the Central American Association, made a statement at one of their meetings, to the effect that had the Javali Mines been bought by the Chontales Company their capital would not be sufficient to carry out their operations. He (Mr. Darbyshire) was bound to stop Mr. Pollock in that statement. He felt it his duty to communicate with the managing director of this company on that subject, and when Mr. Noakes wrote to Mr. Pollock the next day for an explanation, Mr. Pollock denied it, and, therefore, it remained a question of veracity between Mr. Pollock and himself. Unfortunately for himself, but fortunately for Mr. Pollock, there was no reporter present. He (Mr. Darbyshire) thought it incompatible with Mr. Bowen's position as director of the Chontales Company to occupy a similar position in the Central American Association and the Javali Mining Company. He concluded by moving that Mr. Bowen be requested to resign.—Mr. BAXTER seconded the proposition.

The CHAIRMAN said there was already one motion before the meeting. Mr. NOAKES, in reply to a question as to the present financial position of the company, stated that the cash at the bankers amounted to 1888*l.*; the arrears of call, 1102*l.*; cash at the mines at the date of the last account, 3000*l.*; deposited with the bankers at Nicaragua, 3000*l.*; they expected to receive the 1000*l.* that was deposited for the provisional purchase of the San Miguel Mine; and they had to receive from the Foreign Lands Company 400*l.*, making a total of 8748*l.*. On the other side there were liabilities on acceptances amounting to 6406*l.*, which he apprehended would cover all claims upon them up to the middle of December; and there were sundry creditors, 201*l.*; deposits unclaimed, 21*l.*; calls received in excess, 5*l.*; and salaries, 800*l.*, making in the aggregate 7716*l.*. So that their assets over liabilities were 1032*l.*, reckoning their cash at 3000*l.* per month, and also every claim that was likely to be made upon them till the middle of December. Captain Paul stated that he had estimated the cost at more than he would be able to expend, on account of want of labour. There appeared to have been a good deal of misapprehension as to the enormous expenses at the mines, and as to the high salaries paid. It was true the freight and other charges were large, but taking the average of the Europeans, the sum paid them did not exceed 16*l.* per month, and the average of officers and men together, including Capt. Paul, 17*l.* per annum. The financial position of the company was not so good as they had hoped, and simply because they had not received the returns expected.

Mr. SEWELL complained that the report of the directors was meagre, and not over satisfactory. He considered the shareholders were entitled to fuller information, and not to be compelled to get it piecemeal from their friend, Mr. Noakes. He called the attention of the board to the remarks which appeared in last week's *Mining Journal*, for it was certain the information did not go to all shareholders simultaneously. He wished it to be understood that he made no imputation whatever; but he was at a loss to know why the shares, which were 2*l.* 6*l.* per share, had so rapidly declined to 1*l.* 10*l.* per share. He had heard the Robinson had expressed a hope that the cholera would not spread. Was that not that stated?—Mr. NOAKES: It was stated, Sir.

Mr. EDWARD COOKE said he was rather surprised to find Mr. Sewell asking such a question as to the reason why the shares had declined from 2*l.* 6*l.* to 1*l.* 10*l.*, when no one was better able to state the reason than was Mr. Sewell himself. When Mr. Truran returned from the mines and published his report, from the confidence all had in him, which he (Mr. Cooke) certainly by no means rewarded for misplaced, they all felt satisfied they would by-and-by be amply rewarded for their outlay. And when it was known that the first premises of Capt. Paul were endorsed by good authority as Mr. Truran, the shares advanced to 2*l.* 6*l.* per share. Then Mr. Sewell asks why they fell to 1*l.* 10*l.*, when he must have known that the cause was the receipt of news from the mines of the outbreak of cholera, and the dispersion of the native labourers. Mr. Sewell must be aware that supply and demand regulated the price of shares.

Mr. NOAKES, in reply to a statement by Mr. Boyle, said that the directors had no information that any of their European labourers had been induced to leave for the Javali Mine, except Mr. Holman and Mr. Meltzer, and that was at the time the Javali Mine was purchased. Since that time no European, as far as he was aware, had gone from their mines to the Javali.

Mr. BOYLE was glad he had elicited this information. As to the Coolies, there was no doubt great benefit would arise in securing them, because if contracts were made they kept them. They were faithful in their engagements, and exceedingly temperate in their habits, and would save money in order to return to their own country.

Mr. HUSBAND said the question was were the directors, under the difficulties, exerting themselves in the right direction. He had in his hand a report from Mr. Truran, in which he stated that he had minutely examined the lodes, and that he had brought home certain samples from the various veins. That report gave a full description of the working of the mines. The question was whether taking those samples Mr. Truran was able to do so as a miner of sufficient knowledge to give them value at home. He (Mr. Husband) believed he was; and looking at those samples, and comparing them with what were shown to the shareholders when the company was formed, all he (Mr. Husband) as a miner could say was that he considered them a fair set of samples taken from the lodes. If they rejected the sample which yielded 170 cups per ton, which was an exceptional thing, the average was over 95 cups per ton. The results which had been obtained bore out Mr. Truran's full statement in the whole of it; it was stated, and more than that the result from the amalgam obtained by the cups in



operation also bore out his statements. It was to be remembered, too, that the distance from the mine was not yet brought into operation, because of their distance from the cups. He believed the report as to the samples of the ore had been accepted, that rate of expenditure would not continue until the mine was opened, and that the returns would be proportionately increased. As to the Coles, there was no doubt they were valuable property, and they had proved themselves; so at the California Mines, and they were left for their employment. They had done good service at the Coles Mines, and there was no doubt the Chontales Company would get good dividends out of them; but in the meantime while every economy should be exercised, no extra should be spared to carry out their operations with energy, so that the mine should be secure to themselves the profitable results to be realised by the development of a rich property. (Hear, hear.)

Mr. NOAKES said that the report had been called meagre, but seeing that Mr. NOAKES's report had been so recently published, and that the pit of all the information to hand was published, the directors had nothing more to communicate than set forth in the report. As to information being obtained by some shareholders before others, the simple fact was that as soon as the letters were written he wrote that which he considered a fair abstract, which was immediately posted up in the office for the information of all concerned, and the following morning the extracts appeared in the newspapers. The CHAIRMAN said he was responsible for the meagreness of the report, for when the draft was sent to him for approval he cut it down; and he did so because it was merely a recapitulation of facts which were already well known to the shareholders.

A SHAREHOLDER drew attention to the fact that the eight cups at work were sufficient to make such an unfriendly way towards the Central American Association as to make it difficult to get the cups at the mine?—Mr. NOAKES replied that there were two mills now constructed, one with eight cups, which was at work, and the other with six cups, which would have been completed had there been sufficient labour; therefore, in effect, there were 14 cups ready. And there were contracts for the erection of further machinery at the Paven, which was a continuation of the Javali lode. It was there they proposed to eventually have their main machinery. They hoped to erect 86 cups, and it was calculated that the water-power was sufficient to turn that number of cups, although, of course the water-power was not always to be relied on.

The motion adopting the report and balance-sheet was received and adopted. Messrs. Moates and Gifford and Mr. J. H. Murchison, F.R.G.S., were unanimously re-appointed auditors.

Mr. BOWEN said the motion proposed by Mr. Darbyshire had not taken him altogether by surprise, and he was sorry that the remarks which preceded the motion were made in an unfriendly way towards the Central American Association. He indignantly repudiated the inference that he should retail at the board of one company the transactions that took place at the board of another company.

At the time, however, he was perfectly willing to retire from the Chontales. Mr. SALMON (director of the Central American Association) repudiated the inferences which had been drawn by Mr. Darbyshire as ungenerous and unjust. Mr. PETER WATSON: Let the matter drop.

At the request of the meeting, Mr. Darbyshire withdrew his resolution; and the directors of each company agreed to work together harmoniously.

Mr. COOKE said it would, no doubt, be satisfactory to the meeting to hear from Mr. Truran his opinion of the mines, and the probability of supplying the mills with sufficient ore to make the estimated returns.

Mr. TRURAN said he believed Capt. Paul's estimate would be borne out by results, but would take a little more time to realise than Capt. Paul originally estimated. There was sufficient ground opened out to return more ore than the mills could treat. The character of the lodes—friable quartz with oxide of iron—was such that it could be worked away faster than it could be raised, and therefore, there was no occasion to stock. There was no doubt as to the quantity, for the present operations would open sufficient stuff to last for many years.

A vote of thanks was passed to the Chairman and directors, and a similar compliment was paid to Mr. Truran for the valuable services he had rendered to the company by his visit to the mines. The meeting then separated.

**ROYAL CONSOLIDATED COPPER MINES OF COBRE.**

An adjourned special meeting of shareholders was held at the offices of the company, Gresham-house, Old Broad-street, on Monday, Mr. PALMER in the chair.

The MANAGING DIRECTOR read the notice convening the meeting. The CHAIRMAN explained that the business of the meeting was, as stated in the notice, to elect a director in the room of Mr. De Vitre. The names of three gentlemen had been proposed—Mr. T. Williams, Mr. Challis, and Mr. Grenfell; but as the last-named gentleman had written to express his intention to withdraw in favour of Mr. Williams, the shareholders would have to decide between Mr. Williams and Mr. Challis.

Mr. HENRY B. GRENFELL, M.P., in rising to propose that Mr. Challis be elected director of the company, wished to draw the attention of the Chairman to what took place at the last meeting, and reported in the *Mining Journal*. He wanted explanation upon what ground Mr. Palmer stated that he (Mr. Grenfell) had borrowed 50,000l. from the bankers. It was true that question was not before the meeting to-day, but he believed Mr. Williams, one of the candidates for the seat at the board, had supported the views of the committee of shareholders, and, therefore, it was to be supposed he endorsed the statements made by their Chairman, Mr. Palmer; for no party should make a statement that was totally untrue, and, as before any reflective statement was made, at least some should be taken to ascertain whether it was true or not. Mr. Palmer implied that he (Mr. Grenfell) had borrowed 50,000l. at the time the dividend was declared. Now, with such statements as these, he thought that before they placed evidence in Mr. Palmer, Mr. Williams (who, he believed, was Mr. Palmer's nominee)—Mr. WILLIAMS begged Mr. Grenfell's pardon.

Mr. GRENFELL said if Mr. Williams was not his nominee, he—Mr. WILLIAMS (interposing) wished to inform Mr. Grenfell that he was no man's nominee, nor would he ever allow himself to be placed in such a position.

Mr. GRENFELL said that Mr. Williams ought not to have supported the action taken by Mr. Palmer, because it was calculated to throw doubt upon the whole proceedings. As to the two candidates for the office of director, they had before them the fact that Mr. Challis had been their auditor for a long time, and had during the time of the company's difficulties—for the last year and a half—rendered very great assistance with respect to the financial affairs of the company. Therefore, he thought they could do well to support Mr. Challis, and he concluded by moving that Mr. Challis be elected director in the room of Mr. De Vitre, resigned. He did not think the directors had ever received much support from Mr. Williams, and, therefore, he (Mr. Grenfell) would not have much confidence in his appointment, should he be elected.

The CHAIRMAN said he did not think that any gentleman reading his remarks, as reported in the *Mining Journal*, would have understood that he had implied Mr. Grenfell had borrowed 50,000l. from the bankers in his individual capacity. Of course, reference was made to Mr. Grenfell, as Chairman of the directors, who, he believed, ruled the board completely.—Mr. GRENFELL said it was never borrowed at all.

The CHAIRMAN said at the meeting held last year it was stated that they were indebted 50,000l.; and he understood they owed that money to the bankers. The statement that they did owe 50,000l. was not denied, for they had paid off 20,000l. or 30,000l., and they owed 20,000l., and that money was borrowed by Mr. Grenfell.—Mr. GRENFELL: By the board.

The CHAIRMAN said he knew Mr. Grenfell was the Chairman of the board, and the board; but when he said that the money was the party who borrowed the money, he did not mean that Mr. Grenfell had borrowed it in his individual capacity—he, of course, meant as Chairman of the board—and that as the money had been borrowed without the sanction of the shareholders, it was a most irregular act, and more than that, it was a most unfortunate act, at least for the shareholders. He did not mean to say there were any *malæ fides* in the matter, but simply it was a most unfortunate act, and to no other conclusion could any shareholder come. But he had taken his shares as he thought all others ought to do, for it was but fair that each should bear his proportion of the burden. If the directors did that which was wrong, and if Mr. Grenfell, and when he said Mr. Grenfell he meant the board—

Mr. GRENFELL: But you don't say the board, Sir.—The CHAIRMAN; But, Sir, you were the principal—the leading party.

Mr. CHALLIS said he was very much obliged to Mr. Grenfell for having put his name forward as director, but as his time was so much occupied he could not serve the interests of the company by accepting the office, and, therefore, they should allow him to decline the honour.—The CHAIRMAN said that reduced the number of candidates to one.

Mr. Williams was elected director. The meeting then separated.

**EAST DEL REY MINING COMPANY.**

An extraordinary general meeting of shareholders was held on Wednesday, at the London Tavern, for the purpose of continuing the winding-up of the company as an absolute winding-up voluntarily.

Respective of certain arrangements made at a former meeting, and of enabling the liquidators to distribute the property of the company amongst the shareholders.

Mr. JOHN PHILLIPS, one of the liquidators, having been voted to the chair, the notice convening the meeting was read.

The CHAIRMAN said—Gentlemen: We have met here to-day, as you will see from the circular letter which has been forwarded to each of you to consider the best means to be adopted in this crisis of our affairs. It will be fresh in your memory that at the meeting held on May 21 last liquidators were appointed for the purpose of carrying out certain arrangements with regard to a new company. As you have already learnt from our circular, we have failed in that object. Out of 40,000 shares which were offered to the East del Rey shareholders to the public, only about 14,000 shares have been actually subscribed for, and which is less than half of those we required. Under these circumstances, and taking into consideration the extreme disinclination of the public to enter into any speculative concerns just now, we have been under the necessity of calling you together, to ask your sanction to the resolution proposed in the circular letter.

Mr. H. G. STOKES then moved the resolution, which was seconded by Mr. J. PHILLIPS, and was as follows:—That the winding-up of the company be continued as an absolute winding-up voluntarily, irrespective of the arrangement specified in the resolution passed at the extraordinary general meeting, held on May 21 last, and that the liquidators appointed by such resolution do wind-up the affairs, and distribute the property of the company.

A SHAREHOLDER enquired when the money paid in on account of the new company would be returned?—The CHAIRMAN said as soon after this meeting as possible—probably next week.—Mr. W. W. FISHER said that before the meeting was put to the meeting he had a few words to say, by way of an amendment. The shareholders would remember the remuneration proposed to be given to the liquidators, when it was contemplated to form a new company out of the old one. That project would not have taken much time, but little risk was involved, and the fee was then considered sufficient. Now the circumstances were considerably altered. The trouble and expense of liquidating the concern would be much greater, the property of the shareholders being situated in Brazil, and necessitating much care and attention that advantage should not be taken

of the shareholders in that country. The assets over there he hoped might be considerable, and it was usual, and he thought a very good plan, to stimulate the liquidators to increased exertion by paying them a small fixed sum and a commission on the property realised. He, therefore, should propose that the following words be added to the foregoing proposition:—"And that there be paid to each of the liquidators, by way of remuneration, the sum of 100l., and a commission of 5l. per cent. upon all the monies realised and received by them, such commission to be equally divided between them."

Mr. ROSS D. MANGLES seconded the amendment.

A SHAREHOLDER: Can you give me any idea as to the amount that may be realised?—The CHAIRMAN said it was quite impossible to say at present.

A SHAREHOLDER asked in what position those shares would stand on which only 2l. had been paid to those on which 2l. 15s. had been paid?—The CHAIRMAN explained that the second lot of shares, which were issued at a discount of 15s. per share, were by the same resolution made equal in all respects to the original shares. The liquidators would have proper legal advice on the matter.

In reply to another Shareholder, who enquired if a call would be made, the CHAIRMAN said that he thought a call of 6d. a share would be ample for carrying on the liquidation until the property could be realised. With regard to the property itself, he still considered that the shareholders had a valuable estate. The sum of 16,000l. had been paid for the purchase, and a further sum of upwards of 30,000l. had, however, been paid for its development. The machinery and surface works erected, the actual work done in the mine, and the movable property all represented a considerable sum of money. He was not prepared to sacrifice the property by any undue haste in disposing of it, and whilst he was on that subject he would like to make one suggestion to the mover of the amendment. According to his wording, the liquidators were to receive a commission on all monies realised. Now, this was not his wish nor that of his colleague, and he would request that Mr. Fisher would so alter the wording of his amendment that the commission should be paid not on monies realised, but on the money actually returned to the shareholders. (Hear, hear.) He was desirous of making the very best bargain possible for the shareholders. (Hear, hear.)

Mr. FISHER having, with the consent of the seconder, altered the amendment, Mr. ROSS D. MANGLES (the seconder) said he had great pleasure in seconding the liberal and handsome proposition of the Chairman with respect to the remuneration of the liquidators. It was just what he should have expected of him, and he evidently wished to reduce the expenses as much as possible, but it was not the less a liberal and a handsome offer.

The resolution, as amended, was then put by the CHAIRMAN, and carried unanimously.—That the winding-up of the company be continued as an absolute winding-up voluntarily, irrespective of the arrangement specified in the resolution passed at the extraordinary general meeting, held on May 21 last, and that the liquidators appointed by such resolution do wind up the affairs, and distribute the property of the company; and that there be paid to each of the liquidators, by way of remuneration, the sum of 100l., and a commission of 5 per cent. upon all monies distributed amongst the shareholders by them, such commission to be equally divided between them."

A vote of thanks to the Chairman terminated the proceedings.

### NO MORE COPPER SMOKE.

In the autumn of 1865, just two years ago, there appeared in the *Journal* some articles entitled "Copper Smoke," and the above title is chosen for the present articles as an appropriate one under which to describe the great change which has come over the English copper smelting trade during the two years that have elapsed since those articles were written, a change which it is still undergoing, and must inevitably continue to undergo. And it needs no apology to revert again to the subject, for the interests involved are not those of the copper merchants only, but of all the copper mining population of the world, and especially of that considerable population now dependant for employment on copper smelting and manufacturing in the neighbourhoods of Swansea and Liverpool.

At the outset, however, and since it is probable that the subject of the articles referred to has passed away from the memory of the general reader, it will be well to state that they were written at a time when one of the chief copper smelting firms at Swansea was attempting to induce the smelters generally to adopt a particular kind of calcining furnace, of which they had secured the patent, and of which they were erecting a number at their works. The advantages claimed for this form of calciner were not only economy in the labour of calcining, and the utilising of the gases collected in the process of roasting, but also the rendering of the smoke from the furnaces innocuous. In the articles on Copper Smoke this furnace of Messrs. VIVIAN and SON was unhesitatingly condemned, on the ground that it was inappropriate to the general class of copper ores which the smelters have to treat, and because no ore could be treated by it but in a fine state of division. The correctness of that opinion has been remarkably confirmed by the fact that only one of the smelters besides the patentees have erected a single furnace of this particular form; and now the patentees have more of these calciners than they have sulphurous ores to roast in them. As to the possibility of rendering the smoke from the copper works innocuous, no one acquainted with the subject can have a doubt, and these remarks only referred to the applicability of this particular calciner to the purpose. The landowners, however, have not altogether been idle during the last two years in this matter of the copper smoke nuisance, since last year they threatened one of the smelters—the Governor and Company of Copper Miners—with a trial, and were only deterred from proceeding to extremities against them by the assurance that no plan had been devised, or, at all events, well tested, for preventing the escape of the obnoxious gases into the air, and that, therefore, a verdict against the smelters would be tantamount to the entire closing of the Swansea smelting works. It was then agreed that proceedings should be suspended, for the purpose of testing the efficacy of Messrs. VIVIAN's patent, or any other that might be proposed for the purpose. Here the matter at present rests, and, as far as is known, no plan has yet been devised which is both effectual and economical for rendering copper smoke harmless to animal and vegetable life. If, then, no plan has been discovered whereby the smoke from the copper furnaces can be rendered pure, it seems at first sight impossible that there should be no more foul smoke. And yet this is now becoming probable, not because the smoke will in future be rendered harmless, but because there will be no more ores to make the smoke. This is the point to which it is our desire to call attention. To understand the question thoroughly, it is necessary to bear in mind that the total quantity of copper worked up in Great Britain annually is somewhat about 60,000 tons. Of this quantity the mines of Cornwall yield about 9000 tons; the Irish and other British mines, 2000 to 3000 tons; whilst we import from Australia about 2000 tons; from the Cape, California, Cuba, and other sources, about the same quantity as from Australia; and from Chili, Peru, and Bolivia, nearly 37,000 tons.

These figures are not exactly accurate, but they are near enough for the present purpose, which is to make the fact clear to all that Chili and her sister Republics send us two-thirds of all the copper we have to make up. This being once properly understood, it is clear that the nature and extent of our smelting operations must be regulated by the form and character of our imports from the chief source of supply. Now, the great tendency of our superior knowledge in arts and manufactures in days gone by, as compared with that of our neighbours, combined with our vast natural resources, was to attract to this country the raw produce from all parts of the world, to be here manufactured, and re-exported in manufactured forms. Especially was this the case with copper. First the mines of Cornwall produced nearly all the copper smelted in the world; then the Cornish miners spread over Chili, Australia, and California, and finding those countries rich in copper sent us supplies of ores commensurate with the increasing demand of the civilised world, to be here smelted, and converted into metal. This went on so long as the rich mines continued to yield abundantly, but when the ore became poor and unable to bear the expense attendant on exportation to England, then it was attempted to partially smelt the ore in those countries where it was produced, so as to bring the percentage sufficiently high to bear the expense of long sea carriage. Smelting-works were erected for this purpose in Australia and Chili, and the results were so satisfactory that copper regulus began to figure largely in our imports. The passage from this semi-smelted form of copper was but slight to metallic copper, and so it is found that almost contemporaneous with the production of copper regulus came the importation of copper as bar and ingots.

Statistics are never very welcome to the general reader, but they are immensely valuable, as in the present case, where they enable us to perceive a change in the direction of a trade which seriously affects its future condition. And, not to be wearisome, a few figures will suffice, taken from our Board of Trade returns and Chili Government statistics. Our copper imports from Chili in 1866 were 35,000 tons, about made up of 11,000 tons of Chili bars, 18,000 tons copper in regulus, and 11,000 tons of copper in ore. Now, in the six months of this year, ending June 30, what do the exports from Chili say? Why, out of a total exportation of about 22,000 tons to all parts nearly 13,000 tons was in the form of bar copper, 7000 tons copper in regulus,

and only 1300 tons copper in ores. This is a very remarkable and sudden change, and one that makes the original assertion that Swansea will not be troubled any more with copper smoke, seem more probable than it did at the outset. And there is a feature in the figures given above worthy of attention. It is, that whilst the quantity of bars exported from the West Coast has so wonderfully increased in the short space of six months, the proportion of regulus remains nearly the same, proving that the increase of the bar copper is at the expense of the ores, and not of the regulus. Another point which is at first glance astonishing, is the suddenness of this change in the character of the export produce; but our wonder will cease if we look into the troubles through which Chili has lately passed, and the smelting, for which great preparation has been made, only postponed in consequence of the war between the Republics of the West Coast and Spain. It is not, however, intended here to trace minutely the gradual erection of smelting-works on the West Coast, or to enter into the much-vexed question of whether the English copper smelters have brought this condition of things on themselves, but rather to prove that the change is not likely to be one of short duration, but a positive necessity, and a permanent characteristic of our future imports from the West Coast.

### MANUFACTURE OF IRON AND STEEL.

It is usual in the Bessemer or pneumatic process to run 5 or 6 tons of steel out of a small nozzle in a ladle into as many as 20 or 30 moulds to form ingots of suitable sizes for nails, railway axles, and small forgings. To prevent the steel from boiling over in the moulds, and thus making the ingots unsound or hollow, it is necessary to frequently stop or check the stream of steel flowing from the ladle; this frequently closing of the nozzle, and the time occupied by it and by placing and stopping the ladle over each mould, tends to chill the steel around and in the nozzle, and to form a scull in the ladle. It is sometimes impossible to close the nozzle tightly, or at all, in moving the ladle from mould to mould. In pouring small ingots, especially from the top, the stream of steel is likely to hit the sides of the moulds, and to spatter upon them, forming scales which are never perfectly united with the body of the ingot, thus causing seams in the steel when further manufactured; it is also difficult, if not impossible, to make ingots thus cast of exactly or nearly the required weight, on account of the rising and settling of the steel in the mould, therefore an excess of weight, forming more scrap, is usually allowed. The improvements for which Mr. A. L. HOLLEY, of New York, U.S., sought and was refused provisional protection consists chiefly in remedying these defects to a great extent by casting two or more ingots in ordinary ingot moulds at one pouring or teeming.

He places a group of cast-iron ingot moulds around a central ingot mould, somewhat higher than the others, the whole of them being set upon a "distributing bottom" consisting of a box or flask filled with moulding sand, in which are moulded sprues or runners connecting the lower end of the central mould with the lower ends of the surrounding moulds, the central mould being open at the top, and the tops of the surrounding moulds being stopped with suitable vented loam stoppers, or covered with cast-iron plates, coated with loam and properly vented. The metal is run out of the ladle into the central mould, whence it passes through the runners in the "distributing bottom" to the surrounding moulds; when the latter moulds are filled up to the stoppers the metal continues to rise in the central mould until it is filled, thus forming a head or riser, which promotes the soundness of the surrounding ingots; the central mould is then closed in the usual manner. Moulds formed from patterns or otherwise in sand, clay, or other suitable moulding material may be set upon and filled from the "distributing bottom" in place of the surrounding ingot moulds.

To prevent the stream of metal that pours into the central mould from injuring the runners, Mr. Holley, prefers to mould from a pattern in the said distributing bottom a continuation of the central mould, and to run the sprues out of the sides of this continuation. The lower part of this continuation, upon which the stream of metal strikes, he prefers to mould from ground fire-brick or ground crucibles, mixed with enough raw fire-clay to make it plastic; the rest of the distributing bottom may be made of good loam or moulding sand; the distributing bottom must be thoroughly dried before the metal is poured into it. When the metal is sufficiently cool the moulds are removed and the ingots are separated by breaking off the sprues. In casting two or more ingots at one pouring he places a group of moulds in the pit in the usual manner; the tops of these moulds should be flat, and should be in the same horizontal plane; upon the tops of these moulds he places a "distributing top," which he prefers to make, mould, and dry similarly to the distributing bottom. The said top consists, by preference, of an iron flask filled with moulding sand, in which there are formed sprues or runners, leading from the sides of a central cavity or basin into the top of the ingot moulds upon which the "distributing top" sets. The metal may be run out of the ladle into the central cavity or basin, from which it will run into and fill the moulds below; he prefers, however, for the purpose of making less scrap and also of making a high head or riser over the lower moulds, to set an ingot mould over this central cavity or basin, and to make the said cavity or basin a continuation of the said upper ingot mould. The flask that forms the shell of the "distributing top" is provided with slabs or ribs to rest upon the lower moulds and to hold up the upper mould. The "distributing top," like the stoppers or top plates, herein before described, is properly vented, so that the air and gases may pass out of the lower moulds as the metal fills them.

### MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

**GREAT WHEAL VOR.**—A great improvement has taken place in this remarkable mine. The lode in the bottom level (the 204), west of Metal shaft, is 2½ ft. wide, worth fully 70l. per ft. in the end. The rise in the back of the 204, where the curious discovery happened some two months since, improves every foot it is carried up, now worth full 70l. per ft.; it is bearing away west, with every appearance of good tin ground ahead. The prospects of the mine are altogether satisfactory, promising a long period of success. The skip-road at Ivey's shaft is progressing fast. This work precludes any other work at that shaft. The drawing of tin stuff has, therefore, been confined to Metal shaft alone, notwithstanding which they have returned for the last month over 100 tons of tin, realising 3151l. The levels west of Ivey's shaft look well, and are opening out a large extent of tin ground, all yet in reserve.

**NORTH CHIVERTON.**—The works at this mine appear to be progressing satisfactorily. The engine-shaft is now sinking with all speed, and the winzes being put down below the 80 fathom level seem to confirm the prospect of the lode being rich in depth.

**DEVON AND CORNWALL UNITED.**—These mines have within the last few weeks much improved. The 22, west of engine-shaft, is opening out a good lode in whole ground to surface. The 34 ft. level west, 20 fms. east of the above, is producing saving work for copper. There is no doubt that when this portion of the set is properly developed great quantities of ore will be raised.

**WEST MARIA AND FORTESCUE.**—The 60 ft. level, on Capel Tor lode, is much improved since the general meeting, opening out a valuable lode. The winze sinking from the 50 to the 60, on the west Maria, is going down through a good lode, and when through will open out a good and productive piece of ore ground, that will greatly increase the present returns. The agents calculate that 1000l. worth of copper will be returned by the next meeting, and the reserves largely increased; the general opinion is that the mine will pay its cost, and it is evident is opening out one of the best mines in the district.

**NORTH TRESKERBY.**—Much has been said of late about this mine, good and bad, and this very fact shows that people feel the mine is worth attention. Those shareholders who have held so long in firm faith, and who look to the mine, and not the market, have the intense and solid satisfaction of knowing that the concern is in a better position now than when shares were last at about 4l. The 120 has now gone through ore worth 25l. per fathom for a long distance, and most of us know that this not only must make increased returns, but lay open some splendid ground.

**WHEAL MARY FLORENCE.**—The prospects of this mine are exceedingly good, and there are two points now in operation likely to lead to satisfactory results—the driving two cross-cuts from the bottom of Saw's shaft; one north, to intersect the lode on which the deep adit has been driven, and which has been so productive even at that level; while the cross-cut now being driven will intersect it 15 fathoms deeper, and the probability is it will be much more productive than in the adit. Meanwhile another cross-cut is being driven south to cut the lode known as "Knocking's," and from which, 30 fathoms shallower, quantities of ore have been returned. It is to be hoped the shareholders in this comparatively unknown mine will be amply rewarded for their outlay, and open out a really good concern in a legitimate manner.

**TAMAR VALLEY.**—The lode in the shaft is improving daily, and has increased in value in a few feet sinking from 8l. to 10l. per fathom for rich silver-lead ore. This mine promises to rival its predecessors in the parish of Beeralston—the Tamar and South Tamar Mines—both of which gave very handsome profits to the shareholders. The next taking down of the lode, which will be done in the course of next week, is looked forward to with great interest.

**ROSEWARNE CONSOLS.**—It is highly gratifying to hear that the lode in the 80 west still continues to be worth 20l. per fathom, and, from appearances, there is every reason to expect it will prove a valuable run of ore ground. The ore is rich in quality, and can be taken away at 3s. in 1l., thereby leaving a profit of 17s. to the adventurer. The ore is making it the bottom of the 70, and in a few fathoms driving will, no doubt, become equally as valuable as in the 80. This mine should be bought up at once.

**AT SOUTH HERODSFOT** some stones of rich silver-lead have been met with in the 86 ft. level south. The adventurers have decided to sink the shaft to the 100 with all possible dispatch. This mine is a first-rate speculation.

**GOLD MINING IN BRAZIL.**—The directors of the Don Pedro North del Rey Company have received from their agent in Liverpool (Messrs. Bramley, Moore, and Co.) the following:—"Oct. 30. We have just received your telegram from Lisbon, by which we understand that the steamer brings 25,000 oits. of gold from Don Pedro North del Rey Company."

French pitmen are no more prudent than the English. There seems no doubt that the fearful catastrophe near St. Etienne was caused by one of the men opening his "Davy" to light his pipe. The key of a clock was found, which had apparently been used for this purpose. This act of folly was in defiance of express orders and severe penalties. The penalty was severe. The deed cost him and 38 fellow-workers their lives.



## Mining Correspondence.

## BRITISH MINES.

**ABRAHAM CONSOLS.**—John Vivian, Oct. 31: The engine-shaft is set to sink under the 17 ft. level by nine men, at 20 ft. per fathom. The back of the 17 ft. level east is set on tribute, at 13s. 4d. in 11, and the back of the same level west at 11s. in 11, tribute.

**BEDFORD UNITED.**—James Phillips, Oct. 30: We are sinking under the lode in the 62 fathom level winze, and driving by the side of the lode in the different levels on the north lode. Our stopes throughout the mine continue to yield about their usual quantity of ore.

**BRONFLOYD UNITED.**—T. Kemp, Oct. 30: The lode in the cross-cut, east and west of cross-cut, at the 63, is worth on an average about 35 cwt. of ore per fm. I have taken the mo. from the stope under the 52, and put them to rest the stope. The winze under the 52 is now 8 fathoms 3 feet below that level, and I expect a communication will be effected in the course of a few days. No change in the stopes in the back of the 52 and the 40 fm. level ends west. Our crusher has been for some time getting into bad order, and we are now having it thoroughly repaired.

**BRYN GWYN.**—H. Nottingham, Oct. 31: The trials have been making in the south end of the lower level, going south from incline, have not yet led into a run of ore, but we have everything else to be desired. We have been driving, or rather sinking, on the incline eastward from the main level, where we have had a small leader of ore, and we have now what appears to be a very wide north and south lode, containing ground of exactly the same character and formation as we had with all the runs of ore about Clark's level and the bottom of the old incline, and some nice lumps of ore occasionally. We have been following this ground in the least expensive way possible, not knowing whether we should do much work here or not; but now that the ground has changed for the better we must spend a few stems in working it into a lode, and then we shall be able to draw the stuff. Our progress is very slow, only having two men here. There is one man working on tribute in the middle level, south from incline, and getting a little ore. The other two men we have on stem work, in the south end of Field's level, are getting a fair quantity of ore, but I am afraid the ore ground in this part is nearly exhausted. Our sampling will be very small this time—about 6 tons. We are getting on very well at the No. 2 shaft, the ground continuing soft; we shall sink about 3 fms. this week. I may here mention that we do not begin to draw the water out in the beginning of the week until 6 o'clock, so that the shaftmen go underground to work their two first stems in every week.

**BRADDAIN CONSOLS.**—R. Northey, Oct. 29: The lode in the 45 is 4 ft. wide, opening out stopeing ground. The lode in the 35 is disordered by the cross-course. The lode in the 25 is 3 ft. wide, worth 15 cwt. per fm. The lode in the 10 is 1 ft. wide, worth lead ore 1 ton per fathom. All the stopes throughout the mine are looking quite as good as last reported. We are carrying on the dressing with all possible dispatch for another sampling.

**BWLCH CONSOLS.**—R. Northey, Oct. 29: The lode in the 30 is worth 1 ton 8 cwt. per fm. The lode in the 40 is worth 18 cwt. per fm. The lode in the 50 is improving, producing good stones of ore. No change in the 60 and 70 since last report. The stopes throughout the mine will yield their usual quantities of ore. We are going on well in our dressing department, and, according to present prospects, we shall sample at the usual time quite so much as we did last.

**CAPE CORNWALL.**—R. Pryor, W. White, Oct. 30: There has no particular change taken place in any of our bargains during the past week. Saturday next being our pay and setting, a full report shall be sent you.

**CARADON CONSOLS.**—S. Bennett, Oct. 29: In the shaft below the 68 there are several small veins, containing the oxide of copper, and the ground good. The lode in the 68 west is not so wide as it has been, and worth from 6 ft. to 7 ft. per fathom. In the 58 west it is again showing spots of ore, but still poor.

**CARNARVONSHIRE CONSOLIDATED.**—John Kito, Oct. 31: The deep adit level is being pushed on as rapidly as possible, with a view to the unwatering of the old mines, and also for exploring and developing this important part of the property. It will be remembered that we intercepted a small vein just at its commencement, yielding some good lead ore, and I have no doubt as the driving progresses we shall discover other lodes, larger and more productive, as every fathom we drive for a very considerable distance we gain nearly a fathom of cover. The driving of this deep level I regard as a most interesting experiment, and it will undoubtedly prove of the utmost importance to the future well-being of the mines. We have not made much progress underground in the old mine since the resumption of operation, as most of the men have been engaged at surface making the necessary alterations to the machinery before winter sets in; these alterations and improvements will be completed in a few days. We have resumed the sinking of the main shaft at Pencair, and it will be pushed on as vigorously as possible, and I have no doubt with very good results. We have about 7 yards further to sink to intersect the lode.

**CORNISH CLAY AND TIN WORKS.**—W. H. Wilcock, Oct. 29: The stope of clay is still opening up remarkably well, and improving as we gain depth. I hope to be able to get a suitable vessel in a few days and send off a cargo, as the quality is approved. I find the drying-house does not act properly, and will require some alteration in the flues, so that the clay may be dried at a higher temperature.

**CRANKE.**—W. Skewton, W. Hooper, Oct. 31: The lode in the 86 west is 2 ft. wide, composed of strong mundle, spar, and copper ore—sawing work. In the cross-cut south, from the 74 west, we have intersected the lode; it contains mundle, capel, and copper ore, worth 8 ft. per fathom, with a promising appearance. In the 82 west the lode has been disordered by a small slide, but we have the lode again to the west of it 5 ft. wide, worth 10 ft. per fathom. The lode in No. 1 stope, in back of this level, is 2½ ft. wide, worth 14 ft. per fathom. The lode in No. 2 stope, in back of this level, is 3 ft. wide, worth 8 ft. per fathom. The lode in the 50 west is 2½ ft. wide, worth 7 ft. per fathom. The lode in No. 1 stope, in back of this level, is 3½ ft. wide, worth 8 ft. per fathom. There is no stratum in the cross-cut north, from the 40 west, since the last report; the stratum is good, and will, we believe, produce copper ore when the lode is intersected. The lode in the stope in back of this level is 2½ ft. wide, worth 12 ft. per fathom. The lode in the 25 west is 4 ft. wide, worth 16 ft. per fathom. The lode in the rise in the back of this level since last report has varied in value from 6 ft. to 15 ft. per fathom; it is, however, at present worth more than from 7 ft. to 8 ft. per fathom. The lode in the stope in back of this level is 2 feet wide, worth 8 ft. per ton. The whole of the operations are progressing satisfactorily, and the machinery is working well.

**CROWN AND WENDRON.**—R. Reynolds, Oct. 29: The lode in the 10 fm. level has very much improved during the past week, now worth from 9 ft. to 10 ft. per fathom. This lode will form a junction with the south lode about 8 fathoms below this level, and also about 40 fms. further west—two important points, and I hope the present discovery may be only a small one of what may be further expected.

**DALY.**—Nines, Oct. 29: The 44 fm. level cross-cut west must, undoubtedly, be draining the new Pipe vein, as the water is greatly decreased, which is a strong indication that we are getting near the vein. The ground in the 44 fm. level south is much the same as when last reported on.

**EAST GUNSLAKE AND SOUTH BEDFORD.**—J. Bray, Oct. 31: In the 54 fm. level there is no change to note; we are making good progress at this point. The lode in the shallow adit is very large, composed of spar, prlan, mundle, and very fine stones of grey and yellow ore—a splendid looking lode.

**EAST ROSEWARY.**—G. Glasgow, Oct. 31: In the 105, east of King's shaft, we have driven through the slide, and as the end is getting out of its influence the lode is improving, now 10 in. wide, producing good stones of copper ore. In the 105, west of King's shaft, the lode is 15 in. wide, yielding some very good stones of copper ore from the bottom of the end; the ground is rather hard for driving. In the 95, west of King's shaft, the lode is 10 in. wide, worth 4 ft. per fathom. The lode in the rise in the back of this level is 12 in. wide, worth 4 ft. per fm. In the 95, east of King's shaft, the lode is not looking so well as it did last week; it is 10 in. wide, yielding some very good stones of copper ore, but not enough to value. In the 85, west of King's shaft, the lode is 15 in. wide, worth 7 ft. per fm.

**EAST ST. JUST UNITED.**—R. Pryor, R. P. Goldworthy, R. Wearne, Oct. 30: All our points of operation are steadily progressing. No change has taken place in the value of the lodes during the past week. Saturday next being our pay and setting, a full report will be forwarded, which will contain the value of our several bargains.

**EAST WHEAL AGAR.**—W. Johns, J. Williams, Oct. 28: Next's lode, in the 45 fm. level cross-cut west, is very large, containing good stones of yellow copper ore. The south lode in the 30, west of cross-cut, since we have resumed the driving of the same, has improved, and is now presenting a very kindly appearance, being composed of yellow copper ore, mixed with a beautiful prlan and quartz; seeing this change, it encourages us to believe this end will open out something good on leaving the influence of the cross-course. The ground in the 30 fm. level cross-cut south is moderately easy for driving, and fair progress has been made during the past month towards the junction of the killas and granite.

**EAST WHEAL BASSET.**—W. Nancarrow, Oct. 30: At the new shaft, below the 130, the lode is 2½ ft. wide, producing occasional good stones of grey copper ore. In the 130 east the lode is 3 ft. wide, producing a little ore, but not enough to value. In the 130 west the lode is 12 in. wide, letting out water, but unproductive. In the rise in the back of the 130, up about 2½ fms., the lode is 5 ft. wide, the north part letting out water freely, and producing good stones of ore. In the 130 east the lode is 2 feet wide, not of any value at present, but in 4 or 5 fms. driving we shall get under some ore ground driven through in the 110 above. The 70 fm. level cross-cut has intersected the north branch, which is worth for copper ore 10 ft. per fm. The pitch going west from here is worth the same as last reported; working at 6s. 8d. in 11.

**EAST WHEAL GRENVILLE.**—G. R. Odgers, W. Bennetts, Oct. 26: Setting Report: A bargain to make a plat, barrow-road, and to strip down a piece of ground at each end of the shaft by nine men, at 35 ft. per job; this we hope to complete so as to resume the sinking of the engine-shaft next month. At the 110 west we have met with a cross-course that has disordered the lode, but immediately abutting that cross-course the lode would produce fully 1½ ton of good ore to the fathom; and we think that as soon as we are sufficiently west out of the cross-course that the lode will be better than ever, because we shall be getting back towards the bunch of ore driven west at the 95. At the 95 fm. level east end we have on the south side a caunter, 18 in. wide, which is worth fully 1½ ton of good ore to the fathom; set to four men, at 55s. per fm. The old lode, on the north side, is 2½ ft. wide, and producing ore and tin to the value of 8 ft. per fathom; driving by four men, at 80s. per fathom. At this level we have driven through 8 or 10 fms. of a most promising lode, and which we believe will show still further improvement as the 110 fm. level is brought under; it is impossible yet to say much about this caunter lode, but it looks very promising indeed. The rise above this level by four men, at 100s. per fathom, the lode is in two parts, producing ore and tin to the value of 5 ft. per fathom. The 95 west by four men, at 110s. per fathom; the lode is 18 in. wide, producing a little ore, but not to value. The stope above this level by four men, at 50s. per fathom; the lode is worth 1 ton of copper ore, and also tin to the value of 3 ft. 10s. per fathom. The 85 east by six men, at 115s. per fathom; the lode is 18 in. wide, composed of quartz and peach, and worth 6 ft. per fathom.

—G. R. Odgers, W. Bennetts, Oct. 30: Everything in this mine is progressing satisfactorily, and we have no change calling for any special remark since our letter of Saturday.

**EAST WHEAL LOVELL.**—R. Quentrell, Oct. 30: North Lode: The shaftmen are driving west below the 45, in a lode worth 25 ft. per fm. The stope west, in back of the 45 is worth 10 ft. per fathom, and east 2 ft. per fm.—South Lode: In the winze sinking below the 40 fm. level the lode is still worth from 90 ft. to 100 ft. per fathom, with every prospect of continuance. In consequence of the accumulation of tinstuff in the mine and at the stamps, the stopes in the back of the

40 fm. level (which are worth 30 ft. per fm. each) are suspended for a few days, the men being engaged at surface in opening lead and ground preparatory to putting in a new water-wheel for drawing and stamping of the mine.

**EAST WHEAL TOLGUS.**—John Daw, Oct. 30: The 20 ft. level has just come up from underground. The lode in the 88 west is worth 15 ft. per fathom. Particulars by next post, on Monday night.

—W. Richards, Oct. 28: The lode in the 88, west of the cross-cut, is worth 5 ft. per fathom, with a fine channel of elvan on the north side of it. No other change to report since my return from the meeting.

—W. Richards, Oct. 29: The north lode in the 88 west continues to be worth 15 ft. per fm.

—W. Richards, Oct. 30: The ground in the 150 cross-cut north is elvan, and a little water issues from it. The new lode or branch in the 140 is a little larger in the bottom of the end, with a good channel of killas on each side of it. The ground in the 140 cross-cut south is a little more compact at the present time. We have passed through a small branch, containing quartz, mundle, &c., during the past week, in the 130 north; the ground in the extreme point is a mixture of killas and elvan, and water comes off freely. There is no change to report in the 130 east or 120 cross-cut north since last week. The leader part of the north lode in the 38 west is a little larger, and still worth 15 ft. per fathom, with a good looking elvan by its side of it. I shall put two men to drive east of the cross-cut on the north lode next week in the 88. We have commenced the cross-cut north in the 88, west of Homersham's shaft, in a fine channel of ground, which contains small branches of prlan, mundle, &c.

**GAWTON COPPER.**—G. Rowe, G. Rowe, Jun., Oct. 26: The 70 fm. level cross-cut, north from engine-shaft, is producing fine stones of ore, and showing every indication of being near the main part of the lode. The lode in the winze sinking below the 60 is 3 ft. wide, worth 4 tons of ore per fathom. The lode in the 60 east has not been taken down since last reported on, being worth 3 tons of ore per fathom. The lode in the stope in back of the 60 east is worth 3 tons of ore per fathom. The lode in the stope in bottom of the 50 west is worth 3 tons of ore per fathom. The lode in the stope in bottom of the same level, east of winze, is worth 5 tons of ore per fathom. The lode in the bottom of the 50 east, going down west from Moor's winze, is worth 8 tons of ore per fathom. Cradle's stope, in the back of the 50, west from Moor's winze, is worth 6 tons of ore per fathom. The lode in the rise in the back of the 50, west from old sump, is not looking quite so good as last reported on. Our last sampling of ore weighed yesterday 311 tons 9 cwt. 2 grs.

**GLASGOW CARADON.**—W. Taylor, Oct. 29: In the 78 west within the last day or two we have had a favourable change in the ground, with an increase of water; I hope this will continue, and it is likely to improve the lode. We are pushing on the cross-cut south to the new lode at this level; the ground continues very favourable. The stopes on the caunter are producing their usual quantities of ore.—New Lode: The 65 west is worth 8 ft. per fathom, which is less than last reported, but I think it will soon improve. The 65 east is worth 8 ft. per fathom; there is but little change to notice in the stopes on this lode. We are pushing on the cross-cut south to the south lode, but have not yet cut it; we are expecting to do so daily; this is an important point, and if we cut it good it will add considerably to the value of the mine. We are getting on very well with dressing ores for our next sampling, on Nov. 11.

**GREAT LAXEY.**—W. Barkell, Oct. 29: The lode in the end in the 220, driving north from the engine-shaft, is much the same as last reported, worth about 42 ft. per fm. The lode in the 210, driving north, is getting wider as we advance, and producing more blende, now worth 20 ft. per fm. We have not yet got out of the influence of the slide recently intersected in the 200, driving north; but the end is getting into more settled ground, and the lode is increasing in width. The lode in the sump sinking below the 190, and a little in advance of the 200 fm. level end, is worth from 90 ft. to 100 ft. per fm. We have had a great change in the 190 fm. level end, driving north, since our last report, having cut into a large vugh or cavity, about 9 ft. high, 9 ft. long, and 4 ft. wide; and all around this vugh is a fine lead ore, containing quartz, blende, and barytes; and we are standing on each side of the end, and we are safe in estimating its value at 100 ft. per fm. We are still driving by the side of the lode in the 180, and are only carrying a small portion of it in the 165, consequently there is no change to report in these ends, neither is there any change to notice in the 155, driving north; this end is still worth 80 ft. per fm. The 145, driving north, both on the east and on the west vein, is presenting a better appearance, and producing a little more lead and blende. The two parts of the lode referred to in my last report have not yet come together, but they are approaching each other, and we drive north.—Dumbell's: We are again fairly underway sinking the new shaft below the 125; the lode in which is worth about 80 ft. per fm. The 125 fm. level end, driving south, is worth 50 ft. per fm.; and the same level, driving north, is worth about 90 ft. per fm. 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composed of quartz and pyrites, and a little native and grey silver. We have driven the 70 ft. level cross-cut west 6 ft. and 1 ft., and have cut a small stream of water: by all appearance we are very near the lode."

[ADVERTISEMENT.]

From Mr. EDWARD COOKE.—A fair amount of business has been done during the week. The continued depression in the copper market has caused a further decline in the standard for copper ore, and tends to discourage operations on the Mining Market in shares of copper mines. A large amount of business has been done in WEST CHIVERTON shares, and a rise of 5s. to 6s. per share has taken place. The operations conducted by the CHIVERTON and WEST WHEAL CHIVERTON is in the same number of shares as WEST CHIVERTON, and I can only reiterate that the prospects of opening a productive lead mine are exceedingly good. About 100 fathoms have been driven in the 80 fathom level, and it really appears as if the top of a rich deposit of lead had just been skimmed over. In a few months the 95 ft. level will be reached, when good results are confidently expected. Probably a similar mine to West Chiverton will be opened up in North TAUNTERBY, when a similar depth is attained. WEST GREAT WORK is a tin mine of the greatest quality, and the Chiverton and West Chiverton is situated in one of the richest tin districts in Cornwall, and is already making profits. WEST WHEAL KITTY also presents most excellent prospects, and is an exceedingly cheap mine to buy into. GREAT WHEAL VOR is looking well, and continues to improve, and is likely to be a dividend property for many years to come. PRINCE OF WALES MINE has improved in the 55 fathom level, where the lode is now valued at 30s. per fathom. The shares are likely to have a good rise. NORTH TAUNTERBY is a most favourable property, and has done for a long time, and is now leaving a profit again on its workings. The shares have been in good demand, at advanced prices. EAST WHEAL RUSSELL bids fair to command more attention. There are several important points expected to come off during the coming three months.

Gold mine shares have been largely dealt in. The proceedings at the meeting of CHONTALA is recorded in another column. Although the operations of this company have been impeded by several unforeseen circumstances, I advise my friends not to be discouraged. Beyond the operations of the Chiverton and West Chiverton, and the operations of the Anglo-Brazilian Company's Mines. Instead of selling, the shareholders will consult their interests by increasing their holding while the price is low. The price has been forced down principally by market operations, and although I seldom or ever allude to the operations of "bulls" or "bears" on the market, I am of opinion that the shares have been heavily oversold, and that a considerable reaction will take place in their price. DON PEDRO NORTH DEL REY may be termed a brilliant success. Although only 14s. per share has been called up, and although the price is only 10s. per share, the shareholders are already rich from their profits, and the advice just telegraphed from Lisbon, I am informed, are highly satisfactory. In the same locality, and under the same management, are the ANGLO-BRAZILIAN COMPANY'S MINES. They have already returned considerable quantities of gold, and contain excellent prospects. The shares at short timesince were 12s. 6d. prem., 10s. paid. Now they are about 2s. 6d. prem., and should be bought at once.

P.S.—I have just seen the report of the manager of WEST WHEAL KITTY (Capt. John Vivian). He reports most improvements in the mine, besides that alluded to last week. As a low price share, they are well worth buying.

From Mr. J. J. REYNOLDS, Jun. —It was prophesied by the wise men of commerce, that as soon as the holidays terminated a vigorous reaction would ensue, in that the depression of the market would be transient, and securities, but as this much desired result has not been realised, it cannot be disguised that public confidence has not recovered the severe shock it received in 1866, and it will, doubtless, require further time before it is perfectly restored. Investors have received such a knock down blow that they are still quite bewildered, and afraid to venture their money, even in the soundest investments and most promising speculations. There is now more unemployed capital in the country than at any previous period, and, in my opinion, the present time is not a favourable opportunity for share and stock enterprises that have ever occurred. Most securities, even of the best description, are selling at very heavy discounts, and it only requires experience and care in the selection, to ensure very remunerative results. In comparison with other sources for the employment of capital, the Mining Market offers a most favourable contrast, as it has exhibited an unparalleled elasticity under the most adverse influences. In fact, the advantages offered by mining securities are daily becoming better recognised by a class of capitalists by whom they were formerly ignored, and the general popularity of large sums of money is being freely lavished upon the industry. An important revolution has already been effected in the management and manner of working, but there is still very much to be desired, respecting which at some future time I shall refer. However, as the attention of influential capitalists is becoming more directed to this national branch of industry, I confidently anticipate that the most beneficial results will ensue, and that the extensive infusion of fresh capital will revive the glory of our Cornish and Devon mines.

Foreign mining companies have of late enjoyed great, and in my opinion, undeserved popularity. Large sums of money have been lavished upon the exploration of unknown districts, to the detriment of home adventure. Almost invariably the amount of capital solicited for them from the public has been many times greater than the modest requirements of our West of England mining sets, and up to the present time the average results have proved lamentable failures. Most probably the grandeur of their scale of intended operations, upon paper, has imposed upon public credulity, for, dazed by the flattering estimates of fabulous wealth contained in speculative prospectuses, the shares have speedily been generally unsoundly depressed, and there are many such situations, however, fact—the statistics of home and foreign mines—be examined, and it will soon be seen which class of investment has proved the most remunerative to their respective shareholders. I have during the last few weeks made it my study to examine into the position and prospects of our principal dividend and progressive mines, having collected valuable data from some of the best mining authorities, and I shall be happy to communicate with, and advise those who are desirous of investing in the shares of mining companies. I would recommend the immediate purchase of shares in Chiverton, Great Wheal Vor, Hennock Iron, and the Prince of Wales, and West Kitty shares, in all of which I have a special business. At a meeting of the shareholders in Hennock Iron Mine a call of 5s. per share was made.

From Messrs. WARD and JACKMAN.—The decline in the standard for copper this week was evidently anticipated, as many shares which are looked upon as "barometers" of this event have rallied in price since the fact was known. This induces us to think that come what may, in many cases, the worst is passed. There has not been a very active demand for shares this week, although whenever it is ascertained that a mine is looking well, and likely to increase returns, purchasers are at once forthcoming. This is the time of the year when those shares, the price of which is regulated by supply or demand, are generally unusually depressed, and there are many such situations in the most approved districts, and conducted on honest, scientific, and economical principles, which would well repay the investor at present low prices. The only criterion of the profits of mining is to consider the annual interest received upon the capital expended in the purchase of the shares. The mere mention of the Devon Great Consols, in comparing the profits of mining with the profits derivable from any other class of enterprise, almost invariably calls forth an accusation that it is the only profitable mine being worked. But what is the fact? The Devon Great Consols, in comparison with the other mines, has paid out very many which pay considerably higher interest than the Devon Great Consols, and by embarking in more speculative concerns much larger profits may be made, always remembering the remark of Sir H. Davy—"The men who begin with speculation and end with facts begin at the wrong end. The firmest materials should be in the foundations."

From Mr. J. B. REYNOLDS.—I have very little time to notice the exceedingly satisfactory progress of events at the mines which I noticed in my communication to you last week. WEST WHEAL KITTY has still further improved, and is, I should say, at the present moment looking better than it ever looked before. The meetings of various companies have been very numerous this week, and amongst others the WEST ST. IVES shareholders have held theirs. As was anticipated, no call was required. There was 20s. odd in hand, and the shareholders were not called upon to contribute more. The meeting was of the most conclusive nature, and their favourable anticipations concerning the future are, no doubt, more than justified. These shares are at present only a few shillings each, but the stock is enquired for, and firmer in tone. The shares are, doubtless, amongst the cheapest which can be selected. WEST CHIVERTON has had a rise; and WHEAL CHIVERTON, after declining to a very favourable point for buyers, are better. ROSE and CHIVERTON shares should not be lost sight of, as will be seen hereafter. The mine is destined (if the opinions of first class Tin and Copper experts are to be relied upon) to be one of the most important and profitable to be a splendid success. As successful operators are constantly proving, the time to buy shares is not when the excitement sets in, but when quietude prevails in the market for the stock. An instance of this, of very recent date, may be mentioned, which, after all, is only one of many, which have had to be noticed even lately in these dull times.

NEW ZEALAND COAL.—It is satisfactory to state that coal has been found in New Zealand suitable for the use of steamers on long sea voyages. There are mines at the Buller and the Grey, and other mines within 60 miles of Nelson, the coal being of the best quality. Persons to be suffered from the coal, to be brought by rail and delivered at the port of Nelson at 15s. a ton, would be a large margin for profit, whilst it would be a saving to the steam companies of about 10s. per ton, the price of imported coal being 30s. to 35s. Here opens a vast field of operations for the port of Nelson to supply the steam vessels now trading to the port, also to the cities of Nelson, Wellington, Auckland, &c. The Panama boats are supplied at their coaling station at Panama chiefly from Cardiff, at great cost, viz. 4d. per ton, taking coals about 180 days, whilst from Nelson coals could be supplied at about half the price, and in about six weeks. It is very obvious that Nelson, being 100 miles nearer than New South Wales would supply Panama and Oparo, the coaling depot of the Panama New Zealand Royal Mail Company in the Pacific, which latter could be reached in about a month. This is a matter of the utmost importance in the Panama service, each boat requiring about 1400 tons for the run, making, with the coaling steamers of this company, about 80,000 tons per annum, and there are other companies whose vessels would coal at Nelson. It appears that the quantity of coals exported from Newcastle to New South Wales, in 1866, was 645,615 tons, a large portion of which was consumed in New Zealand.

WILLIAM CRAWSHAY.—An admirable and life-like portrait of the late Mr. William Crawshaw has just been lithographed by Messrs. Schenck and Son, of Edinburgh. As Mr. Crawshaw was much esteemed in the districts in which he lived, and his death was a great loss to the community, the portrait, from the lithographic publication of a really excellent likeness of him, finished in the first style of art, cannot fail to be gratifying to a large number of his admirers.

HOLLOWAY'S OINTMENT AND PILLS.—Fistulas, piles, excoriations, and strictures are speedily relieved and ultimately removed by applying this ointment, after a moderate friction with warm water. Persons to be suffered from these ailments, the human frame should arrest their progress at once, for if it both insidious and rapid. Fistulas, if allowed to go on unchecked, not only weaken the nervous system, but destroy life. The sooner these inextinguishable remedies are used the more certain is success; yet none need despair; hopeless cases have often yielded, and the sufferer has been saved a painful death. In excoriations, a few applications of this healing ointment effect a cure, while the pills, conjointly used, are especially beneficial in relaxing and removing strictures, whatever their situation or duration.



## Projected New Companies.

Company.	Capital.	Shares.	Each.
Sir Edward Lead Mining Company.....	£ 2,000	2,000	£1
London and Westminster Co-operative Stores.....	10,000	10,000	1
London Clerks' Club.....	25,000	25,000	1
South Salop Mining.....	20,000	200	100
Bedfordshire Middle Class Public Schools.....	20,000	800	25
Ton Mawr.....	120,000	12,000	10
Kewick Gaslight and Coke.....	3,000	600	5
Brighton Grammar and Commercial School.....	2,000	200	10
Levant Mineral.....	20,000	1,000	20
Cefn Brynno Mining.....	15,000	3,000	5
European Breach-Loading Firearms.....	30,000	6,000	5
Haslingden Public Hall.....	5,000	5,000	1

**CEFN BRYNNO MINING COMPANY, 15,000l., in 3000 shares of 5l. each.**—The objects for which this company is established are the purchase of the Cefn Brynno Mine (formerly called Cefn Cwm Brynno), situated in the parish of Llanbadarn Fawr, county of Cardigan, Wales, together with the plant, machinery, materials, and other works thereon. The developing and working the said mine and mining rights, granted by said lease, and the dressing, crushing, and other preparations for sale, and the sale of the ore, metals, or minerals gotten therefrom. The disposal at any future time of the said lease, mine, mining rights, plant, machinery, or any part or portion of them. The doing of all such things as are incidental or conducive to the attainment of the above objects. The Memorandum was signed by—WILLIAM CHARLES BULLER, 10, Old-square, Lincoln's Inn, W.C., barrister-at-law; 25, JOHN HENRY MURCHISON, 8, Antinofians, London, mining engineer; J. THOMAS STANTON, Esq., 11, Portchester-square, Middlesex, W., 25; JOHN JONES, Bridge End, Aberystwith, mining clerk; 5; RICHARD JENKIN JONES, Marine-terrace, Aberystwith, general merchant; 5. Number of directors shall not be less than three, nor more than five. First directors—WM. CHARLES BULLER, THOMAS STANTON, and WILLIAM TUXFORD; qualification, 25 shares. The directors shall be paid for their services the sum of 100l. per annum, and in every year when a cash dividend or bonus shall be declared of 10 per cent. or more per annum upon the paid-up capital, the directors shall be entitled to an additional sum of 100l. per annum.

**LEVANT MINERAL COMPANY, 20,000l., in 1000 shares of 20l. each.**—The objects for which this company is established are the acquiring of mines and mining rights and privileges in Turkey, and elsewhere, in the Levant, and the working, crushing, and other preparations for sale, and the sale of the ore, metals, or minerals gotten therefrom, and the preparing, exporting, and importing to and from Turkey, and elsewhere, in the Levant, of such emery-stone and all merchandise and other things requisite for, and incidental to, the operations of the company; and the dealings in such mines, and the employing of ships and other vessels for the purposes of the company; and the doing of all such other things as are incidental or conducive to the attainment of the above objects. The Memorandum is signed by—WILLIAM WILSON DAVIES, New Weston-street, South-west, emery manufacturer; 84; CHARLES JOLLAND DAVIES, New Weston-street, South-west; 85; JOSEPH BORMAN, 72, Shoe-lane, emery manufacturer, London; 250; ROBERT BRUCE GOLDSWORTHY, Hulme, Manchester, emery manufacturer, 250; JOHN OAKLEY, 172, Blackfriars-road, London, emery manufacturer; 84; JOSEPH OAKLEY, 172, Blackfriars-road, London, emery manufacturer; 83; JOHN OAKLEY, jun., 172, Blackfriars-road, London, emery manufacturer; 83. The number of directors shall not be less than four nor more than five, unless a general meeting shall otherwise prescribe. First directors—JOSEPH BORMAN, WILLIAM WILSON DAVIES, ROBERT BRUCE GOLDSWORTHY, JOHN OAKLEY, Esq., Qualification, 50 shares. Each director shall be paid as a remuneration for his services a fixed salary of 100l. per annum.

**SIR EDWARD LEAD MINING COMPANY, 2000l., in 2000 shares of 1l. each.**—The objects for which this company is established are the searching for, mining, crushing, winning, digging, raising, purchasing, or otherwise acquiring, washing, crushing, smelting, reducing, refining, manufacturing, and otherwise rendering merchantable, of lead, lead ore, black jack, calamine, and other ores, metals, minerals, fossils, and earths, and products thereof respectively, and the dealing in, selling, and disposing of the same, &c. The purchasing, taking in exchange, or on lease, or otherwise acquiring, and also the working of the mine under a portion of a farm called Cae, in the occupation of EDWARD PHILLIPS, situated at Pen-y-Ball Hill, Haywre, North Wales, which mine belongs to Sir Edward Lead Mining Co., Bart., and is called the Sir Edward Mine, and its metals, minerals, &c. The Memorandum is signed by—JAMES GOULD COOPER, 63, Church-street, Manchester, merchant; 425; CHAS. CASTLE, Esq., Stapleton, Gloucestershire; 400; WILLIAM WREDFORD BROWN, Esq., Weston House, Stapleton, Oxon; 300; WILLIAM WATSON, Whitehall-road, Leeds, slate merchant; 250; JOHN HITCHEN, 2, Wilton Villas, Eaton-road, Chester, surveyor; 175; EDWARD CHARLTON HARDING, 35, Market-street, Manchester, merchant; 125; JOSEPH SIDEBOTHAM, 36, Bradford-street, Manchester, pawbroker; 75; FREDERICK CHURCHILL, 63, Church-street, Manchester, clerk; 30; JOHN WORMALD, Whitehall-road, Leeds, slate merchant; 50. Registered without articles.

**SOUTH SALOP MINING COMPANY, 20,000l., in 200 shares of 100l. each.**—The objects for which this company is established are the searching for, mining, crushing, winning, digging, raising, purchasing, or otherwise acquiring, washing, crushing, smelting, reducing, refining, manufacturing, and otherwise rendering merchantable, of lead, lead ore, black jack, calamine, and other ores, minerals, fossils, and earths, and products thereof respectively; and the dealing in, selling, and disposing of the same, whether raw, smelted, manufactured, or otherwise dealt with, or rendered merchantable; the purchasing, taking on lease, or otherwise acquiring, of the White Grit and Ladywell Mines, situated in the parish of Shelve, Salop, and its metals, minerals, fossils, earths, and products; and the purchasing, taking in exchange, or on lease, or otherwise acquiring, or otherwise rendering merchantable, of any other lands, hereditaments, mines, mineral properties, and other estates; and any grants, concessions, leases, setts, or other interests, in lands in Salop, or elsewhere in Great Britain, and patent and other rights and privileges, &c. The Memorandum is signed by—ROBERT REEVES, St. Helen's, Lancaster, gentleman; 10; JOSEPH COOKE, Shrewsbury, Salop, master; 10; JOHN THOMAS, Pontesbury, Salop, coal proprietor; 5; JOHN JOB, Smallbeck Mines, Salop, mining agent; 5; JOSEPH SMITH, Pontesbury, Salop, merchant; 5; THOMAS HARRISON, Dale-street, Liverpool, ironfounder; 5; GEORGE HOLT, Liverpool, metal factor; 5.

**TON MAWR COMPANY, 120,000l., in 12,000 shares of 10l. each.**—The objects for which this company is established are the purchasing, leasing, or otherwise acquiring, taking, and holding, any coal mines, iron mines, or other mines, mining ground, or minerals of any description; and more particularly the purchasing of certain freehold estates in Glamorgan, known as the Forchdrom and Ton Mawr Iron Estates, and the coal, ironstone, and other minerals thereunder, and under a certain tract of mountain land called Wainihod; and also a certain colliery in the same county, known as the Ton Mawr Colliery; and the searching for, getting, raising, and making merchantable, and selling and disposing of coal, ironstone, and all ores, metals, and minerals whatsoever. The carrying on the trades or businesses of miners, smelters, ironmasters, ironfounders, and shipowners, and the doing of such things as may be necessary or conducive to the attainment of the above objects. The Memorandum is signed by—J. ALOX, 10, Angel-court, Bank, London, coalowner; 5; LIEUT.-COLONEL W. ST. B. BROWN, 23, Bilton-road, Rugby; 5; W. C. GREENOCH, 3, County-grove, Camberwell New-road, Surrey, gentleman; 5; JAS. DUNCAN THOMSON, 6, Garway-road, Westbourne-road, Baywater, Middlesex, gentleman; 5; W. COX, 84, King William-street, London, gentleman; 5; RICHARD BARRETT, 13, Mark-lane, London, printer and stationer; 5; WILLIAM THOMAS HUXLEY, 1, D-dillingdon-grove, West, Kensington Park, Surrey, gentleman; 5; DEODAD HUGHES, 1, Blandford House, Fordingham, Norfolk, gentleman; 5; ARTHUR HEDLEY MACLEAN, 7, Berkeley-gardens, Kensington, London, major-general late Bombay Army; 5; FREDERICK GREEN, 10, Angel-court, Bank, London, gentleman; 5; EDMUND STRANGE PARSONS, Greenfield Villa, London-road, Neath, Glamorganshire, coalowner; 5. Number of directors not less than three nor more than six. Qualification 50 shares. Remuneration 800l. per annum. First directors to be chosen by the subscribers to Memorandum of Association.

**EUROPEAN BREACH-LOADING FIREARMS COMPANY, 30,000l., in 6000 shares of 5l. each.**—The objects for which this company is established are to acquire, by purchase, the goodwill, plant, and machinery of Mr. CHARLES PHELPS' gun factory, at Birmingham; to acquire, by purchase, the British patents of the Cochran Improved breech-loading firearms; to manufacture firearms of any description, and ammunition; to acquire, by purchase, any patent interest in, or the whole of, any other patents relating to firearms, and ammunition; to negotiate contracts for the manufacture, purchase, or sale of firearms of any description, and ammunition; and generally to do and transact all and any kind of business relating to the manufacture, purchase, or sale of firearms and ammunition. The Memorandum is signed by—J. G. CHOSSE, Parkside, Beckenham, Kent, and Army and Navy Club, retired major; 1; S. C. PRICE, 23, Duke-street, Grosvenor-square, and Oriental Club, captain; 1; CHARLES PHELPS, 3, Road-lane, London, E.C. merchant; 1; ARTHUR HARVEY, 34, Coleman-street, City, accountant; 1; S. B. TUCKER, 49, Parliament-street, London, merchant; 1; FITZMAURICE PALMER, 44, Strand, London, civil engineer; 1; T. F. ALLISON, 118, Cannon-street, London, merchant; 1. The regulations contained in the table marked A, in the first schedule to the Companies Act, 1862, shall be the regulations of the company, except so far as hereinafter excluded or modified.

**NEW EXPLOSIVE MIXTURE.**—A new and cheap gunpowder, in which the use of charcoal is entirely dispensed with, has been invented by Mr. PAUWEL, of Paris. He proposes to soak glue or gelatine in cold water, and then to heat it in dilute nitric acid until dissolved. It is then evaporated to dryness, and re-dissolved in hot water, when the acid is neutralised with carbonate of baryta. The solution is again evaporated, one part of sulphur and six parts of nitrate of potash for every two parts of glue being incorporated as the evaporation proceeds. A quicker powder may be made by substituting chloride of potash for nitrate of potash.

**THE COPPER TRADE.**—Messrs. Vivian, Younger, and Bond (Nov. 1) write—A further quantity of 100 tons of Chili bars was sold at 69l. and the 28th ult. 250 tons were parted with at 68l. 10s., on the assumption that the charter from the West Coast would be very large. The mail was delivered on the following day, advising the large quantity of 3200 tons of fine copper—2800 tons of bars and ingots, and 500 tons of copper in ores and regulus—which induced some holders to give way to 68l. for bars, at which price about 500 tons have been taken. A small parcel to arrive was sold at 68l. 1s. A reaction since appears to have set in, and at the time we write the market may be called 69l. sellers, and 68l. buyers, the latter being more anxious than the former, as bars are just now particularly well held in Liverpool. There have been no transactions in West Coast ores and regulus. Some business in raw English has been done at low prices. In the foreign no transactions of any importance are recorded.

With this week's Journal a SUPPLEMENTAL SHEET is published, which contains Letters on "Our Coal Fields;" the Darien Canal—No. IV., by Dr. Cullen; and on the New Process for Making Chlorine, by Mr. Walter Weldon; Pneumatic Railway Tube, Artificial Marble; Fire-Damp and Safety-Lamps; Cornish Pumping Engines; Copper Ore Statistics; Foreign Mining and Metallurgy; Mineral Resources of Canada; and the meetings of the New Quebrada, Otea Copper, West St. Ives, and Great South Chiverton Mining Companies, &c.

## The Mining Market; Prices of Metals, Ores, &amp;c.

METAL MARKET—LONDON, NOVEMBER 1, 1867.

COPPER.	£ s. d.	IRON.	Per ton.
Best selected, p. ton	77 0 0	Bars Welsh, in London	6 10 0
Tough cake and tile	76 0 0	Ditto, to arrive	6 10 0
Sheathing & sheets	80 0 0	Nail rods	7 0 0
Boils	83 0 0	Staffd. in London	7 10 0
Bottoms	85 0 0	Bars ditto	7 10 0
Old (Exchange)	70 0 0	Hoops ditto	8 10 0
Burra Burra	84 0 0	Sheets, single	9 5 0
Wire	0 10 0	Pig No. 1, in Wales	3 15 0
Tubes	0 11 1/2	Refined metal, ditto	4 0 0
BRASS.	Per lb.	Bars, common ditto	5 15 0
Sheets	9d.-10d.	Do. march, Tyneor Tees	6 10 0
Wire	8 1/2d.-9 1/2d.	Do., railway, in Wales	5 10 0
Tubes	10 1/2d.-11d.	Do., Swed. in London	2 6 10 0
Yellow Metal Sheath, p. lb.	7 1/2d.	To arrive	10 2 6 10 0
Sheets	7d.	Pig No. 1, in Clyde	2 15 0
SPELTER.	Per ton.	Do. f.o.b. Tyneor Tees	2 9 0
Foreign on the spot	£21 15 0	Do. No. 3, f.o.b. do.	2 6 2 0
"to arrive	21 15 0	Railway chairs	5 10 0
ZINC.	Per ton.	"spikes	11 0 12 0
In sheets	£28 0 0	Indian Charcoal Pigs,	7 0 0
TIN.	Per box.	in London p. ton.	7 0 0
English blocks	96 0 0	STEEL.	Per ton.
Do., bars (in barrels)	97 0 0	Swed., in kegs (rolled)	14 5 0
Do., refined	99 0 0	Ditto, (hammered)	15 10 0
Banca	92 0 0	Ditto, in fagots	16 0 0
Straits	90 0 0	English, spring	17 0 0
TIN-PLATES.	Per box.	QUICKSILVER (p. bottle)	6 17 0
IC Charcoal, 1st qua.	1 7 6	English Pig, com.	19 7 6
IC Ditto, 1st quality	1 13 6	Ditto, L.B.	19 15 0
IC Ditto, 2d quality	1 5 6	Ditto, W.B.	21 15 0
IC Ditto, 3d quality	1 11 6	Ditto, ordinary soft	20 0 0
IC Coke	1 3 6	Ditto, sheet	20 10 0
IC Ditto	1 9 6	Ditto, red lead	20 15 0
Canada plates, p. ton	13 10 0	Ditto, white	27 0 0
Ditto, at works	12 10 0	Ditto, patent shot	22 10 0
		Spanish	19 10 0

\* At the works, 1s. to 1s. 6d. per box less.

† A Derbyshire quotation: not generally known in the London market.

**REMARKS.**—It is satisfactory to find that an improved business still continues to be done in metals, and that much more activity is shown in the market than has existed for some time past; and although in some cases makers have had to make concessions in price, in order to obtain business, yet there is evidently much more disposition to give out orders than there has lately been, though buyers are, of course, desirous of taking advantage of every disposition to meet them on the part of manufacturers. However, should the improvement continue (as it is to be hoped it will do) those facilities in buying cannot be expected to last, as when business becomes decidedly better, and orders come in with greater regularity, sellers will then become firmer in their prices, and not be disposed to make those concessions which they have now been doing. It is to be regretted that the anticipations as to the settlement of affairs in Italy have not been realised, and that at present appearances are not by any means of a favourable character, as it seems very doubtful what may be the ultimate issue of the contention now going forward there. It is to be hoped, however, that the matter will not be long delayed, and that a termination will speedily be put to the war, which as long as the Emperor of the French is determined to uphold the temporal power of the Pope seems to be worse than useless. To a certain extent, of course, the unsettled state of parties in Italy tends to check continental orders, and hinder the recovery which is hoped for in commercial affairs. Orders from India are now coming in much more freely, and we look with satisfaction to the improvement which appears to have taken place there, and which we trust will continue.

**COPPER.**—The market for this metal continues dull, and the advances received from Chili have not been calculated to improve matters; they report that charters in the fortnight were equal to 3200 tons of raw copper from England and France; and this large quantity has had the effect of further depressing the market, and caused the quotation for Chili bars to drop to 68l. English tough cake is now quoted at 76l., and business has been done in sheet and sheathing at 80l. Wallaroo has been sold at 81l., and Burra stands nominally at 84l. per ton.

**IRON.**—In Staffordshire the demand continues rather quiet, and the orders received are of small amount. The United States are only taking a little from South Staffordshire, and but for the requirements of the East Indies the trade would be very dull. In Welsh the new quarter has now been fairly entered upon, and there is no doubt that, upon the whole, a better feeling is beginning to be evinced. The Russian contracts that have to be completed this season keep two or three establishments rather fully employed, but from the end of this month until the commencement of next spring the district will have to depend mainly on other markets. To the United States several cargoes have of late left, but there is some uncertainty as to the future requirements of that country; still there are hopes of an increasing demand. The continental enquiry is checked by political matters, and the uneasy feelings as to the preservation of peace. Several of the home railway companies have commenced to make small purchases, and as the total mileage requiring re-laying is large, it is clear that shortly they will be larger buyers. In Swedish iron a good business continues to be done, and parcels now in course of arrival are freely sold. In Scotch pig-iron a moderate business has been done during the week, the price at one time rising to 55s. 6d. cash, but towards the close becoming rather easier, and remaining at 55s. 3d. cash.

**LEAD.**—The market has not been active, and only a limited amount of business has taken place. Prices are rather easier, common English pig being now quoted 19l. 7s. 6d., and L.B. 19l. 15s.

**TIN.**—Although transactions in Straits are not by any means extensive, yet the market remains steady, and the prices continue firm, at 90l. cash. In Holland the stock of Banca on warrants on Oct. 31 was 172,601 slabs, against 166,796 slabs same time last year, and the arrivals towards next sale were 18,978 slabs, against 50,926 slabs same time last year. The present quotation in Holland is 53l. 15s.

**SPELTER.**—This metal has continued to improve during the week, and a fair amount of business has been done. The price on the spot has advanced to 21l. 15s., at which holders are firm.

**TIN-PLATES.**—The trade is rather slack than it was, but makers are not disposed to give way in prices.

**STEEL AND QUICKSILVER** in moderate demand only.

**BIRMINGHAM, NOV. 1.**—Rylands' "Iron Trade Circular" says—Pigs are firm, but business flat; manufactured iron is quiet; rails are rather brisker; plates are moving; all transactions are small; fears of war abating.

**MIDDLESBOROUGH, OCT. 31.**—The "Iron Trade Review" states—The pig-iron trade continues to improve a little, and prices are this week a trifle stiffer, but there is no change to record in actual quotations. For forward delivery an advance of 2s. to 2s. 6d. is obtained in most cases. The stock of iron in store is 72,617 tons. Manufactured iron is not so brisk as it was, and many mills are on short time. Messrs. Hopkins, Gilkes, and Co. this day blow in their two new blast-furnaces.

**MCKENZIE'S CANNEL.**—A manufacture of considerable interest is now being carried on at Murton, near Seaham Harbour, by Messrs. Petchell and Co., of Middlesborough. This is the production of an artificial substitute for Cannel in the manufacture of coal gas. The object of using a portion of Cannel coal is to raise the quality of the gas to the proper standard of illuminating power. The artificial Cannel made under McKenzie's patent, consists of pulverised bituminous coal, or "dun," mixed with crude shale oil or petroleum, in the proportion of from

25 to 35 gallons of oil to the ton of coal. This material can be supplied at little above half the price of Cannel. From experiments which have been conducted at the Middlesborough Gasworks, under the supervision of Mr. John Dunlop, the following results were obtained—

Total quantity of coal used.....	51 tons 10 cwt.
Total quantity of gas made.....	508,871 cubic ft.
Amount of gas per ton.....	9,871 cubic ft.
The illuminating power varied from 24 to 27 candles during the experiment, tested every hour of the day.	
Total quantity of coke produced, 42 tons 11 cwt. 2 qrs. 2 lbs., used as under—	
14 Engines.....	6 1 1 0
65 Retort fires.....	27 16 2 26
21 Sale heap.....	8 13 2 4
100.....	42 11 2 2

Quantity of ammonia water, 360 gallons—113 gallons per ton.

Lime used was about 50 percent. In excess of that used for the ordinary Durham coal, which is one lb. per 1000. Coke was very good in appearance, but light in texture; hence it took more water, and this accounts for seeming increase in quantity. In the fires it was not so lasting as the ordinary coke, and clinkered a good deal more. It is not intended, however, to use the artificial cannel by itself, but only to add it in proportions sufficient to bring up the illuminating power of the gas to the requisite standard.

This matter was fully discussed at the last meeting of the British Association of Gas Managers, and we understand the manufacture is now proceeding satisfactorily. Mr. T. Vaughan, of Middlesborough, is the sole licensee of the patent. It may be added that by recent improvements less lime is required in purifying the cannel gas than is taken in ordinary cases.

**LIVERPOOL, OCT. 31.**—Messrs. Knowles, Gorst, and Riso write—Copper: On the West Coast there was abundant shipping when the mail left, and there being no wheat or flour for export, this tonnage was chiefly taken up for copper produce, at 20s. to 30s. per ton. At these rates about 3300 tons of copper were engaged, and our market is not so good in consequence; closing at 68l. for bars, and 14s. for ores and regulus.—Tin: Our information from Singapore, received about two months ago, and reported by us at the time, spoke of a strike, a sort of Fenian rebellion, amongst the natives; its effects are now apparent—three shipments, between Sept. 6 and 18, being in the aggregate only 12 tons. These are the last dates we have. Prices are for the moment depressed, owing to large arrivals in London last week. Straits we quote at 90l. to 90l. 10s.

The settlement of the fortnightly account in the MINING SHARE MARKET took place on Wednesday, and was very heavy in Prince of Wales, Chontales, West Chiverton, and a few other mines. A fair average amount of business has been transacted during the week in several others, such as Seton, North Treskerby, Great Wheel Vor, Chiverton Moor, East Russell, Marke Valley, East Caradon, Wheal Basset, Grenville, East Grenville, and others. West Chivertons have been in great demand, and leave off 70 to 72l.; the 110 end, west of Hawke's, on the south part of the lode, is worth 60l. per fathom; the 110 west, on the north part, 20l. per fathom. No. 2 winze, below the 100, is worth 60l. per fathom. The various points of operation in the mine are valued in the aggregate at 547l. per fathom. The stopes and pitches are laying open good reserves of lead ground. Since this report was received a fine discovery has been made in the 70 cross-cut north, on Elizabeth's lode, worth 30l. per fathom; this is in whole ground to surface. In the 80 on this lode there has been a course of ore 100 fms. long; the west end is worth 50l., and the east 25l. per fathom.

Chontales shares have been firmer, and leave off 3 1/2 to 3 3/4; a full report of the meeting will be found in another column. The chief points of interest appear to be—1st (as we stated last week and the week before) Capt. Paul has still the fullest confidence in being able (with plenty of labour) to work out his original estimates.—2. The directors have no doubt of the ample yield of gold.—3. The present cups at work, eight, are capable of returning gold sufficient to pay the monthly costs, and six more are just ready to go to work. The directors contemplate putting up altogether 86 cups, in about twelve months.—3. Mr. Truran states that there is no doubt as to the quantity of stuff for the cups, as the present operations would open out sufficient to last for many years. If eight cups, therefore, will produce 3000l. per month, 86 ought to yield large profits, and the whole question at present is one of labour. To obviate this difficulty the directors have sent out to engage a number of Coolies; and it is hoped that so soon as the cholera departs the natives will return to their work; and upon the information received upon this point by next mail the directors will act in reference to the making a call or not.

Bedford United, 20s. to 25s.; Carn Brea, 13 to 15; Chiverton Moor, 5 to 5 1/2; Clifford Amalgamated, 6 to 6 1/2; East Basset, 13 to 15; East Caradon, 5 1/2 to 6; East Carn Brea, 2 1/2 to 2 3/4; East Wheal Lovell, 8 1/2 to 8 3/4; East Wheal Russell, 32s. to 34s. Prince of Wales shares have kept firm at 52s. 6d. to 54s.; the lode in the 55, east of cross-course, is worth 20l. per fathom. In the 55 west, west of first cross-course, there is a strong ore lode. The cross-cut north, towards the north lode, has been driven 22 fms. from the main lode, which is about the distance they are apart at the surface, consequently if the lode has a south underlie it will soon be met with; we understand, however, that in a small shaft sunk on the back of the lode no underlie is perceptible, and it may, therefore, be going down perpendicularly, or inclining north. The mine, the agents say, is looking well, and the sampling for November will be 130 tons. East Wheal Grenville, 1 1/2 to 2 1/2; Frontino and Bolivia, 14s. to 16s.; Great Laxey, 17 1/2 to 18 1/2; Great Retallack, 3 1/2 to 3 3/4; Great Wheal Vor, 17 1/2 to 18 1/2; Marke Valley, 6l. to 6 1/2.

Wheal Buller, 18 to 20; the various points in operation at this tin mine are worth 182l. per fathom in the aggregate; the 70, west of Hocking's shaft, has improved to 26l. per fathom. North Chiverton, 4 1/2 to 4 3/4; North Crofty, 3 to 3 1/2; North Downs, 10s. to 12s. 6d.; North Treskerby, 36s. to 38s.; Providence Mines, 29 to 30; South Darren, 1 1/2 to 1 3/4; Tincroft, 12 to 13; West Caradon, 6 1/2 to 7 1/2. Wheal Grenville, 31s. to 33s.; the lode in the new shaft sinking below the 120 is 4 to 5 feet wide, with a promising appearance. In the winze sinking below the 100 west the lode is worth 100l. per fathom. West Seton, 170 to 180; West Wheal Kitty, 15s. to 20s. West St. Ives, 5s. to 10s.; at the meeting the accounts showed a balance of 20l. 14s. 11d. in hand, and the report encouraging. Wheal Basset, 87 1/2 to 90; Wheal Chiverton, 5 1/2 to 5 3/4; Wheal Mary Ann, 17 1/2 to 18 1/2; Wheal Seton, 10 1/2 to 10 3/4; South Frances, 35 to 40.

The Market for Mine Shares on the Stock Exchange during the week has been rather active, and a fair amount of business has been transacted at full prices. Don Pedro shares rose to 2 1/2, 2 1/2 prem., but finally close rather less firm at 2 1/2, 2 1/2. Chontales after the meeting fell to 3 1/2 dis., but have, subsequently, rallied to 4 1/2 dis. Central American unchanged; St. John del Rey shares fully maintain quotations—59, 60; Pestarena shares are steady, at 4 1/2 to 4 1/2 prem. British mines continue in good demand. The chief feature of the market has been a rise in West Chiverton shares, consequent on the steady improvements that have for long been taking place. The large regular increase to the reserves, and the discovery made on Thursday in a cross-cut at the 70, where the lode has been cut, worth, so far as seen, 30l. per fathom, and whole to surface; shares are in demand, at 70 to 71. Chiverton, 5 1/2 to 6; Chiverton Moor, 5 to 5 1/2; Marke Valley shares continue to be enquired for, at 6 1/2 to 6 3/4; East Caradon shares are firmer, at 5 1/2 to 6; Great Laxey shares are very steady, at 17 1/2 to 18; Great Wheal Vor shares are unchanged; Prince of Wales shares are good, at 2 1/2 to 2 3/4. North Wales lead mines are attracting attention. Miners shares are about 180. Maes-y-Safn, 26 to 28; there is a very rich course of ore in this mine, and the profit would appear to be about 20s. per share per quarter. Westminster (Limited) is opening up well; the lode in the shaft continues to improve, and lead is now being raised in course of opening up the mine that will go far towards paying cost.

**IRISH MINE SHARE MARKET.**—Throughout the week our Stock Exchange dealings in all securities have been slightly in favour of investors; business generally wanting animation, in consequence of a feeling of uncertainty how continental political circumstances may ultimately turn. This absence of a healthy spirit for business on the part of buyers has kept down prices for mining shares, in common with other securities, the more speculative ones, of course, suffering most neglect, finally amounting to a considerable decline. The Connores shares have gradually fallen to 6s., at which figure they leave off on offer; and General Mining Company for Ireland shares have been sold, and are still to be had, at from 1l. 17s. 6d. to 2l. per share,



LEAD ORES.				
Date.	Mines.	Tons.	Amount.	Purchasers.
Oct. 10	Isle of Islay .....	39	£13 12 6	Shield and Dunning.
	ditto .....	11	3 7 6	ditto
25	Wheat Mary Ann .....	60	24 10 6	Trefry's Trustees.
	Great Laxey .....	100	22 13 0	Stms, Williams, & Co.
25	Harwood .....	30	13 7 6	Walton and Co.
29	Dyflie .....	82½	11 18 6	Walker, Parker, & Co.
	ditto .....	82½	11 18 6	A. Eytton.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Oct. 31	Great Laver			

Oct. 31—Great Lacey ..... 300 ..... £ 3 10 6 .... Vivian and Sons.

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BLACK TIE

Date.	Mines.	Ts. c.	q. lbs.	Price p. ton.	Amount.	Purchasers.
Oct. 26	Great Wh. Ver.	53	12	1.15	\$2151. 2.33	

**COPPER AND COPPER ORES**  
Sold at LIVERPOOL, from Oct. 15 to Oct. 31.

Messrs. Pitcairn-Campbell and Co. (Oct. 31) write—A decline of

30s. to 40s. upon the quotations in our last has been submitted to on Chili bar copper, and the general feeling as regards the market is depressed. The advices from Chili report full supplies, the total exports up to September 16 having been 37,917 tons fine copper, against 38,317 tons during the corresponding period of last year. Quotations are 68s. for bars, 14s. for ores and regulus, 76l. for ingots, and 15s. to 15s. 3d. for Barilla. The sales reported in the fortnight, exclusive

of the Swansea sale, amount to 1036 tons bars, 100 tons ingots, 760 tons regulus, 540 tons ore, 35 tons Barilla :—							
	Mine or ship.	Tons.	Price.		Mine or ship.	Tons.	Price.
Bars—Delta .....	50	.. £70 0		B'lla—Arequipa .....	11	.. £ 0 15	3s.
" Beatrix .....	50	.. 70 0		" Seawell .....	22	.. 0 15	3s.
" Beatrix .....	50	.. 70 0		Ing.—Second hands..	77	.. 7 0	
Ore—Canadian .....	440	0 14 0		Bars—Beatrix .....	80	69 0	
" Californian .....	100	0 14 0		" Lieut. Maury .....	90	69 0	
Reg.—Chili .....	260	0 14 0		" Tongoy .....	97	68 10 0	
Ing.—Second hands..	40	77 0		" Malda .....	116	68 10 0	
" Second hands..	50	77 0		" River Avon .....	40	68 10 0	
Bars—Malda .....	10	70 0		" Tongoy .....	130	68 0 0	
" Beatrix .....	10	70 0		" Lieut. Maury .....	50	68 0 0	
" Second hands..	100	70 0		" River Avon .....	24	68 0 0	
Reg.—Minero .....	500	0 14 0		" Lieut. Maury .....	150	68 0 0	

21½ per cent; average price, 14s. 2d. per unit.

Arrivals during the fortnight—Sylhet, from Valparaiso, 80 tons bars; River Avon, from Valparaiso, 390 tons bars; Jos. Thompson, from Carrizal, 263 tons ores and 363 tons regulus; Tongoy, from Totoralito, 520 tons regulus and 180 tons bars. Copper (from Chile and Peru) 10 tons best and second hands, (likely to be available, are—

Ores.	Regulus.	Bars.	Ingot.	Bar.
Liverpool .....	1308	2895	4950	393
Swansea .....	1857	132	662	545
Have .....	—	—	3650	430

— 64 —

Total ..... 3165 ..... 3027 ..... 9262 ..... 1368 ..... 227  
Representing about 12,850 tons fine copper, against 13,950 tons Oct. 31, 1866 :  
13,210 tons Oct. 31, 1865 ; and 12,300 tons Oct. 31, 1864.

COPPER ORES.

Sampled Oct. 9, and sold at Swansea, Oct. 29.							
Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.

Suba	89	15	10	10	10	Knockmahon	57	94	26	16
ditto	90	15	10	7	6	ditto	123	94	6	8
ditto	88	15	10	6	6	ditto	100	100	7	12
ditto	87	15	10	10	6	ditto	30	100	7	9
ditto	74	15	10	6	6	ditto	132	94	6	16
ditto	72	15	10	6	6	Berehaven	115	100	7	4
ditto	49	22	15	13	6	ditto	51	100	7	5
ditto	34	22	41	4	4	ditto	91	100	7	5
Cape	37	48	33	9	0	Newfound	1	100	7	0
Chilif	37	48	33	9	0	Californian	49	15	10	10
ditto	37	47	33	5	6	ditto	47	15	10	13
ditto	37	51	35	12	0	ditto	43	15	10	10
ditto	37	51	35	8	6	ditto	67	14	10	1
ditto	37	47	33	9	6	Otea	60	14	11	4
ditto	37	46	33	8	6	Copper Reg.	24	33	23	10
ditto	37	49	34	18	0	Ore	20	22	15	7
ditto	37	49	34	18	0	Concordia	7	25	17	15
ditto	50	50	35	9	6	ditto	6	21	14	14
ditto	50	51	35	10	0	Cape Ore	5	29	20	3
Knockmahon	77	98	6	16	6	Burnt Ore	96	18	0	16

Cuba.....	553	£6,132	19	6	Otea .....	60	£673	10	0
Cap Ore.....	33	603	18	0	Copper Regulus....	24	554	12	0
Chilli Regulus ..	556	19,192	8	0	Copper Ore .....	20	307	10	0
Knockmahon.....	519	3,591	14	6	Concordia.....	13	212	12	6
Berehaven.....	257	1,863	18	6	Cap Ore .....	5	100	15	0
Newfoundland ..	1	9	0	6	Burnt Ore .....	96	76	16	0

Californian Ore., 208	2,142	6	0
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COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Copper Miners Company .....	217	£1731 15 6
Freeman and Co. ....	171	1654 8 6
D. Gossell and Sons .....	164	3759 10 0

F. Greenleaf and Sons	104	3755	12	0
Sims, Williams, & Co.	121	1608	13	6
Vivian and Sons	48	38	8	0
Williams, Foster, & Co.	809	9965	11	6
Mason and Elkington	49	768	1	6
Bankart and Sons	131½	2583	2	9
Charles Lambert	336	6375	7	0

Sweetland, Tuttle, and Co. ....	266 1/2 .....	4893 0 3
Total .....	2343	£35,472 0 6

NO SALE Nov. 19.

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TOTALS AND AVERAGES.

at extra	Declines	Below	Standard
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Whole sale ..... 2343 ..... 21¼ .... £15 2 9 ..... £92 8 0

**COPPER ORES.**

Sampled Oct. 16, and sold at Tabb's Hotel, Redruth, Oct. 31.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Clifford Amalgamated 102	...	£4 9 6	South Frances	32	£6 6 6
ditto	81	4 6 6	Wheal Basset	41	4 10 0
ditto	80	7 5 0	ditto	35	4 7 6
ditto	73	6 2 6	ditto	31	4 0 6
ditto	68	7 5 0	ditto	30	7 5 6
ditto	65	£ 11 0	East Pool	69	9 16 6

ditto	68	6 11 0	East Pool	68	2 10 6
ditto	62	4 13 6	ditto	41	3 3 6
ditto	48	5 0 6	ditto	20	4 0 0
ditto	40	2 0 6	South Condarrow	56	9 0 6
ditto	31	6 3 6	West St. George	33	2 13 6
ditto	2	37 11 0	ditto	21	2 12 0
West Seton	75	2 8 6	East Grenville	32	3 6 6

ditto	74	2 10 6	ditto	8	6 10 0
ditto	70	8 2 0	ditto	7	1 10 0
ditto	66	7 19 6	Tresavean	39	2 5 6
ditto	62	5 10 6	ditto	3	7 3 0
ditto	61	5 15 6	North Grambler	24	6 6 0
ditto	56	3 17 6	ditto	18	4 1 0

ditto .....	55	8	4	6	North Roskear .....	37	5	1	6
ditto .....	51	2	7	0	North Crofty .....	26	5	5	6
South Frances .....	64	6	15	6	Pendarves United .....	17	4	2	6
ditto .....	54	9	1	0	South Basset .....	9	2	2	0
ditto .....	53	8	18	6	Wheal Grenville ....	6	6	4	6
ditto .....	46	5	14	6					

TOTAL PRODUCE.											
Clifford Amalgam	652	....	£3632	17	6	Tresavean	.....	42	....	£ 110	3
West Seton	570	....	2946	2	6	North Grambler..	42	....	224	2	0
South Frances	248	....	1854	15	0	North Roskear	37	....	187	15	6
Wheal Bassett...	137	....	680	13	0	North Crofty	26	....	137	3	0
West Beach	190	....	405	9	0	Bondaries United	17	....	70	9	0

East Point.....	100	405	2	0	Florida River Valley.....	10	.....	.....	.....
North Condurow ..	56	505	3	0	South Basset .....	9	.....	18	18 0
West St. George...'	54	142	17	6	Wheat Greenville..	6	.....	25	7 0
East Greenville ..	47	168	18	0					

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Average Standard .....	£101	9	0	0	Average Produce .....	8
Average Price per ton.						£3 7 0

Quantity of Ore..... 2073 tons | Quantity of Fine Copper, 165 tons 15 cwt.  
Amount of Money..... £11,110 4 6  
**NET SALE.**—Average Standard..... £102 0 0.—Average Produce..... 8½  
Standard of corresponding sale last month, £110 3 0.—Produce, 6%.

**COMPANIES BY WHOM THE ORES WERE PURCHASED.**

Names.	Tons.	Amount.
Vivian and Sons .....	329½	£1825 2 9
Freeman and Co. ....	115	458 4 9
Greenfell and Sons .....	226½	1350 14 9
Sims, Wiliams, and Co. ....	203	1275 1 6
Williams, Foster, and Co.....	334½	1379 8 0
<b>Total .....</b>	<b>934</b>	<b>4441 9 4</b>

Mason and Bickington.....	244	1481	2	0
Bankart and Sons.....	148	1073	0	0
Copper Miners' Company.....	724½	292	12	9
Charles Lambert.....	254½	1031	0	9
Sweetland, Tuttle, and Co.....	87	696	16	6
Penclawd Copper Company.....	31	196	1	6
Geole Alum Smelting Company (Limited)	37½	90	18	9

Total ..... 2073 .... £11,110 4 6

Copper ores for sale at Tabb's Hotel, Redruth, on Thursday next.—Miner and arcelis.—Prosper United 427—Levant 217—West Basset 210—East Carn Brea 180—Wheal Margery 167—East Rosewarne 133—Copper Hill 104—Wheal Buller 25—

Hamborne Veau 22—Wheal Curtis 20—West Briton 20—Great Work 16=1541 tons.  
NO SALE on Thursday week, November 14.



## WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,  
MINING AGENTS, STOCK AND SHARE DEALERS, &c.  
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

MESSRS. WATSON BROTHERS beg to notify to their friends and the public generally that Mr. W. H. CURELL has retired from the firm in accordance with the deed of partnership; and having also sold to the remaining partners all his right, property, and interest in the business hitherto carried on by J. Y. WATSON, F.G.S., NAPOLEON FREDERICK WATSON, and himself, under the name of "WATSON and CURELL," the same will be carried on in future by Mr. J. Y. WATSON and Mr. N. F. WATSON, under the designation of "WATSON BROTHERS," and they take this opportunity to return their most sincere thanks for the great patronage bestowed and confidence reposed in the firm for 24 years, and to assure their friends and clients it will be their earnest endeavor to merit a continuance of both.

Messrs. WATSON BROTHERS have made arrangements for continuing their weekly Circular, which has had a large circulation for many years, to the columns of the *Mining Journal*, their special reports and remarks upon mines and mining, and state of the share market, will in future appear in this column. In the year 1843, when Cornish mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1847, and published in 1843, by Mr. J. Y. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share dealing than there is at present; and, from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services to all connected with mines or the market, as they have for so many years done privately, through the medium of their own Circular.

Messrs. WATSON BROTHERS transact business in the purchase and sale of mining shares, and other securities, payments of calls, receipt and transmission of dividends, obtaining information for clients, and affording advice, to the best of their knowledge and judgment, based on the experience of more than 30 years active connection with the Mining Market.

Messrs. WATSON BROTHERS also inform their clients and the public that they transact business in the public funds, railway, docks, insurance, and every other description of shares dealt in on the Stock Exchange.

Messrs. WATSON BROTHERS are also daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

Messrs. WATSON BROTHERS having agents and correspondents in all the mining districts, and an extensive connection among the largest holders of mining property, have the more confidence in tendering their advice on all matters relating to the state and prospects of mines and mining companies, and are able to supply shares in all the best mines at close market prices, free of all charge for commission.

LABOUR IN CENTRAL AMERICA.—In the report of Mr. J. Collinson, C.E., of a survey made for the proposed railway through Nicaragua, and dated Sept. 10, 1866, in reference to labour he says—"Labour of first-rate quality, I know, with judicious management, can be largely obtained in the country, and importation, if required at all, will have to be carried out only so far as to show the natives that we are not dependent on them, and thus keep down the price, and low rate of wages." In the pamphlet in which this report is published we find, from Capt. Bedford Pim, R.N., "an examination of the gold and silver district of Chontales proves beyond dispute its immense value, and, no doubt, the Nicaraguan gold and silver fields are destined to a prominent place in supplying the precious metals to the world." The lodes are large and strong—some of them 40 ft. in breadth. The quartz at surface is friable, but becomes more compact and produces more visible gold as the depth increases. The deepest mine yet worked is 225 ft. below the summit of the hill. From one sample in which gold was not visible we obtained 68 ozs. 10 dwts. of gold and 28 ozs. 0 dwts. 12 grs. of silver per ton; and from 4 lbs. 2 ozs. of ore, by simply washing and amalgamating, two large pieces of gold were produced, equal to 300 ozs. to the ton."

In reference to the climate he says—"There is no country superior to Nicaragua for climate; her forests, her inland navigation, are unsurpassed. And the general healthiness of the country is above the tropical average, which is proved by the age the natives attain. In Matagalpa seventeen men all above ninety years were living, and still active. Indeed, in almost every city and town people point out with pride their very old men, of whom custom dating from long before the Conquest." These extracts, relating to labour, climate, and the gold fields of Chontales, may prove interesting just now.

"F. G. A. D."—With the present price of metals and state of the mine we should be inclined to sell.

NEW EAST RUSSELL has sampled 49 tons of ore, averaging 8½ per cent.; and the mine, as we have said often and often, is the best spec in the district.

THE SAN DOMINGO COPPER MINE.—One of the most remarkable copper mines in the world is that of San Domingo, in South Portugal. Hartmann, a German mining engineer, who visited the place in March, 1865, published in the same year an account of it in the *Berg- und Huettenmaennische Zeitung* from which we obtain the facts of the following description. The San Domingo Mine lies about 15 miles from the left bank of the Guadiana, and about two miles from the Spanish border. The fact that it is only accessible by difficult journeys over narrow mule-paths, explains how it is that so little is known about it, although it is, in fact, one of the most important mines in the world. The deposit has its outcrop upon a hill about 40 meters high, and is characterised by a very decided "iron cap," or "gossan," which carries abundant efflorescence of iron and copper vitriol. Like the deposits of Ducktown, Tenn., Copperopolis, Cal., and others, this is not a fissure vein; but a stockwork, or mass of ore. The length of the deposit is about 1,000 meters; while its thickness is somewhat irregular, and averages about 70 meters. There are so far no signs of a contraction in depth. The entire mass of this deposit is iron pyrite, containing 10 to 15 per cent. of copper ore, mainly copper pyrites. The contents in copper averages 3-6 per cent., in sulphur 50 per cent. Gangue there is none, not even the smallest fragment. The country rock is metamorphosed clay-slate of yellowish white or red colour, conchoidal or splintery fracture, low gravity, and great hardness. When struck with a hammer, it gives a ringing tone. Taking all things together, Mr. Hartmann does not doubt the pliocene origin of the deposit. We cannot agree with him in this opinion, but leave the question as one of purely theoretical interest, to continue our practical description. For many centuries this mine had remained in oblivion. Within the last ten years it was revived, and rented to a Portuguese company, which, however, was not competent to utilise its fabulous resources, and soon resigned it to the possession of a French capitalist, who in 1856 was still the owner. He leased it for a term of years (50 or 80) to Mr. James Mason, an English mining engineer, whose energy and skill, administering an immense expenditure of capital, have speedily developed the unequalled resources of this mine, and have brought it to a point which was probably never before attained in the history of mining enterprise. The fact that he is only the lessee, and not the owner, naturally leads him to make the most of his time, and to work on a plan which is, perhaps, not the best in every respect for the permanent success of the mine; yet, after all, the immense scale on which the operation is conducted, and the great results accomplished, are sufficient to make us overlook the faults, which are but spots on the disc of a splendid success. The business administration of the mine is excellent in every respect. Mr. Mason began his operations in 1859, with a tunnel, about 200 meters long, which was run from the foot of the hill to the north-west end of the deposit. This cross tunnel is remarkable for sloping downward into the mine at a grade of one in twenty. After striking the deposit, it follows horizontally along the south-west wall to the other end, and then back again through the middle of the deposit, parallel with its former north-west by south-east course. These two drifts were then connected, at intervals of 8 meters, by wide cross-cuts, leaving great masses of ore perfectly accessible on all sides. As there are from 30 to 40 meters in height of ore standing above this level, there is room for regular stopping on an immense pattern. It is evident that 10 meters of the "backs" have been gained by the downward inclination of the entrance tunnel, or adit. Nevertheless, such a piece of engineering would be altogether unwise, were it not that by the means of natural drainage this level is kept perfectly dry. Shortly after these preparatory works were opened an inclined shaft (grade 1 in 3) was sunk near the adit-mouth, and at a perpendicular depth of about 40 meters the second set of levels was established and vigorously opened. Even a third level, 40 meters below the second, was already in 1865, in active preparation. The water is removed from both of these, by means of a powerful steam-engine and pump, through the inclined shaft. Ventilation is effected by means of air-shafts. The ore is brought from the upper level by means of tramways which run down the slopes, where the ore is loaded in baskets upon the cars, and these are then drawn by mule-teams up the inclined tunnel. From the second level the transportation is the same, only that the cars in the inclined shaft (which is too steep for hauling) are drawn up by a whim, with eight mules. It will be seen that great expenditure of power is required to bring the ore to grass under these unfavorable circumstances. Whether the difficulty might have been avoided in the case of the first level, we will not stop to enquire. The mine is connected with the Guadiana by a railroad more than 20 miles long, and including many heavy grades. Four locomotives and over 100 mules supply the motive power. The ore is loaded from the mine cars into the large railway cars, and carried to the river, where it is dumped into the ships in waiting to carry it to the different parts of England. In 1865 the daily production was about 1000 tons of ore! This almost incredible quantity was nearly all obtained from the upper level. No one who considers the nature of the deposit, and the manner in which it has been opened, can fail to see that it affords an opportunity to work a large force and to increase the daily yield to an extent only limited by the capacity of the tunnel and tramway. It is precisely in such cases that administrative ability is distinctly felt. The neighboring Spanish mine of Tharsus, which has a pyritic deposit probably six times as large as this, has failed through want of skill to produce so good results. A picturesque and lively town (pop. 1865, 4000) called San Domingo, has sprung up, within a few years, close by the mine—an evidence of the reality of its success and importance; since where the town stands was but recently a desert. The secrets of this success may be summed up for the benefit of other miners, as follows:—1. The great size and massive character of the deposit, making all "dead work" unnecessary.—2. The natural drainage of the upper level.—3. The cheapness of labor.—4. The careful and yet bold manner in which the work has been laid out, for years to come. American engineers seldom or never prepare their work for so long a time in advance; and so are often crippled for want of stopping-room.—5. The route to the English markets, by rail 20 miles, and the rest of the way by ship. This railroad was built by Mr. Mason.—6. Strict and decided business management in all matters, down to the smallest detail.—R. W. B.: *American Journal of Mining*.

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## Notices to Correspondents.

•• Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

LIMITED LIABILITY.—"Inquirer" (Bradford).—Upon the forfeiture of shares by the directors the shareholders' liability in respect of those shares ceases. Except by forfeiture, a shareholder can only free himself from further liability to the extent of the uncalled capital by selling and transferring the shares, paying all arrears due previous to transfer.

EAST WHEAL ROSE CONSOLS.—Can any reader oblige me with some information regarding this mine as to its prospects?—A SHAREHOLDER.

THE SOUTH RESOLVEN AND CEFY MAWR COLLIERY COMPANY (LIMITED) alias THE NEATH MERTHYR STEAM COLLIERIES COMPANY (LIMITED).—If any correspondent can furnish the Inquirer with satisfactory information as to the progress and general condition of this undertaking, he will be conferring a great boon upon an original and anxious shareholder. What is doing? and when is a meeting again to be held?—SCRUTATOR.

SULPHATE OF BARYTES.—We have a letter in reference to the enquiry which appeared in last week's Journal from "A Subscriber" (Cockermouth),—whose address we have mislaid.

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, NOVEMBER 2, 1867.

## IRON AND COALMASTERS IN PARLIAMENT.

The Iron and Coal Trades in different parts of the kingdom should not neglect to use the present time as favourable to a state of things which has long been regarded as desirable—the less restricted representation of their interests in Parliament. Looking at the magnitude of these interests, it cannot be denied that they are, numerically, very insufficiently represented in the House of Commons. The fact was irresistibly conclusive during the recent legislation of the Factories Extension Act and the Hours of Labour Regulation Bill, measures involving the gravest interest to nearly all the trading classes of the realm, not previously affected by the class of legislation which it embraced. If the coal and iron trades had been represented in the House at that time as they deserve to be, and, as, indeed, they might be if the matter were taken in hand with vigour, those Bills would have passed through the Parliament in a much more complete state than that in which they have now become a part of the law of the land. And these observations apply in a yet stronger sense to that other kindred measure which was passed in the same session. The crude and inextricably confused character of the Master and Servant Act, which is a measure in which the industries especially represented by the Journal are even more concerned than in the other two, would scarcely have been possible if there had been in the House at the time that it was passed a larger trading and commercial element. Such men, having a practical knowledge of what was needed, and accustomed to express themselves with the terseness and perspicuity indicative of the thorough knowledge of a subject, would have produced a Bill which should not have been a burlesque upon legislation.

A yet graver reason why at this time the matter of the parliamentary representation of coal and iron interests should occupy the assiduous attention of all engaged in it is the fact that, as has already been pointed out in the Journal, the operatives are making great efforts to secure the presence of their order in the House after the next election. The danger to the interests of the country which is thereby threatened we have previously spoken of. There is no reason why the operative order should not be represented in the House by men from the ranks, if they were only fitted from the task, but it is clear that the views which they would be required to represent, and which themselves possessing would be deemed their qualification, are such as would result if they could be in any degree carried into action, in consequences of the greatest danger not only to the prospects of trade, but also to personal liberty. The colleague of Lord JOHN MANNERS remarked with correctness the other day at Loughborough, when speaking upon this subject, that if Trades Unions were to rule in this country they might bid good bye to liberty altogether, and that the stratagems of the Unionists could only be defeated by people of respectability uniting to oppose them. Coercion would be the order of the day. It has been correctly observed that this assumption of a coercive authority is the root from whence all that has been so disgraceful and repulsive in the working of the system of Trades Unions has originated; and that if such associations are to be tolerated—far more, if they are to be legalised—they must abdicate the function they have so long usurped of attempting to impede the exercise of the right of free labour. They must abandon the inconsistent and illogical claim of being free to band themselves together to exercise the liberty which they refuse to allow to others. The very existence of a free trade policy is threatened. While all our legislation of late years, it is added, has been favourable to free trade, and the working classes have been among the foremost in agitating and calling out for it, they have at the same time coalesced in building up a gigantic and most oppressive system of protection.

These principles can only be successfully checked by the introduction into the new Parliament of a larger element of employers engaged in manufactures, who are most thoroughly interested in the commercial progress of the nation, and who, in the present state of the education of the operative classes of our country, know very much better what is best for them, as well as the country generally, than they or any of their self-styled leaders know. The coal and iron interests should look around them, and see where there is any probability of successful candidature. The Unionists are active enough. They have their attention directed to new boroughs, and to the boroughs which have an increase of members. What they are doing in Birmingham was intimated last week. It is clear they will attempt to get the third seat in that important borough, if, indeed, they do not go for a yet larger class share of the representation. Whilst Birmingham is to have a third member, Staffordshire is one of the counties which is to be formed into three divisions. The district comprising Birmingham and Staffordshire may fairly be taken as an illustrative one in reference to the branches of trade with which the Journal is especially concerned. It shows to how small an extent the processes of industry peculiar to it are represented in Parliament. Of the two Birmingham members, only one has any practical acquaintance with the trades of the town, whilst out of the whole of the county and borough members in Staffordshire only one is associated with either the coal and iron, or the hardware interests.

We are pleased, however, to find that at least in the new—the third—division of the county, an ironmaster has come forward and expressed his readiness to represent it, if before the dissolution of the present Parliament he should receive promises of support which would fairly justify a contest. The ironmaster who has so expressed himself is Mr. JOHN HARTLEY, of the Oaks, Wolverhampton, and it is stated that he has come forward in consequence of a very earnest desire that has been expressed that the new division of that county shall be represented by a local member, intimately acquainted with the commercial interests of the district. Such an acquaintance Mr. HARTLEY undoubtedly possesses. He has been engaged in the trades of the district all his life, and is now, it is added, the leading member of the well-known firm of G. B. THORNEYCROFT and Co. We know nothing of Mr. HARTLEY's politics, but his speech, sketched by us last week, is a sufficient indication that he has not only a knowledge of what the trade requires in a legislator, but that, also, in respect of the operative classes, he knows what they most want to make them prosperous and happy.

Mr. HARTLEY began his connection with South Staffordshire nearly

40 years ago, as a partner with his brother, who is now the member for Sunderland, in the famous glass-making firm of CHANCE and Co. He then, upon marrying one of the daughters of the late Mr. G. B. THORNEYCROFT, became a partner; and in the arrangements which that gentleman made at his death he became the managing partner of the concern which Mr. THORNEYCROFT had established. He is the ex-Chairman of the Ironmasters' Association of South Staffordshire, and takes a leading part in the county business as Chairman of the Police Committee of the county; and is in the Commission of the Peace, not only in the county of Stafford, but also in the borough of Wolverhampton. Indeed, his interests as a landed proprietor are as considerable as those peculiar to his position as an iron and coalmaster. We have given these facts as they have been made known to us, not in advocacy of Mr. HARTLEY over any other man, speaking politically and locally, but chiefly to show the class of men who, in our opinion, are likely to be brought forward with most probability of success in the interest of the trading community with which the Journal is most concerned.

When Mr. W. O. FOSTER, the only trade member in Staffordshire, to whom we adverted above, was brought forward for the south-west of that county, the Ironmasters' Association there practically introduced him, and wisely passed a resolution in his favour. A similar course, we imagine, that association will take in respect to Mr. HARTLEY for the new division of the county; and we do not see why, at the same time, they should not nominate a second member, seeing that Mr. HARTLEY is also a large landed proprietor, and the Eastern division of the county will likely be pretty much made up of both manufacturing and mining interest, and also the agricultural. Surely, very little difficulty, we imagine, will be found in the selection. Indeed, already a gentleman very largely connected with the coal-mining operations of Staffordshire has publicly expressed his intention to stand for the east of that county. That gentleman is Mr. McCLEAN, whose model mines were fully described in the Journal a fortnight ago. Such men as Mr. HARTLEY and Mr. McCLEAN would be of the utmost service to the coal and iron interests of this country in Parliament, and we trust that the men of business in Staffordshire will send either them, or better men, up at the next election. We have also reason to know that an effort will be made to secure a member for the new borough of Wednesbury, in the same county, also from amongst the iron and coal masters of the district.

We heartily commend what is being done in Staffordshire to the coal and iron interests in other parts of the kingdom.

## COAL-CUTTING MACHINERY—No. I.

That machinery could be invented, and profitably employed in the cutting of coal in mines, has for many years been admitted, but it has not until a comparatively recent period that any steps were taken for the purpose of bringing the matter to a practical issue. Indeed, previous to 1864 there were very few machines at work, or at all known, but in that year, owing to a dispute between the colliery proprietors of South Yorkshire and their workpeople, which led to an almost entire stoppage of trade throughout the district, the question of machinery for getting coal was prominently brought forward and discussed. To meet the pressing necessities, and to some extent to be independent of the miner, the Coalmasters' Association meeting, at Barnsley, offered to subscribe 5000, towards the cost of the three first machines put down and worked. The collieries which accepted the offer were the High Royd, the Wharfedale Silkstone, and the unfortunate Oaks. The machines accepted, or selected, were those invented by Mr. J. G. JONES, of the Blairston Ironworks, in Monmouthshire, and which were to be worked by compressed air. The first machine was completed and ready for work on Aug. 4, 1864, in the High Royd Colliery, belonging to Messrs. HALL and Co., and it was put into operation in the presence of a very large gathering of colliery owners and others connected with and interested in mining affairs. Having been present on the occasion, we are enabled to state that the general opinion was that, although Mr. JONES's machine might not be all that could be desired, yet it appeared capable of being so far improved as to become a very valuable agent. The machine consisted of a cylinder, bed-plates, and bearing, all in one casting, and supported on four wheels. The pick shaft was carried by a cylindrical bearing, capable of being turned by means of a hand-wheel at the end of the machine, so as to fix the pick in any position by which vertical, horizontal, or angular grooves could be cut in the coal. The force of the blow given was said to exceed a ton.

Similar machines were put down at Wharfedale, Silkstone, and the Oaks, the cost of the pumping apparatus at the last-named colliery being close upon 10000. The anticipations with regard to the machines, however, were not realised, and the working of them ultimately abandoned, although we believe two of them, at least, are still at the bottom of the collieries in which they were first placed, the piping and air apparatus of all of them being available for the testing of any other machines which may be brought out. In justice to Mr. JONES, it may be stated that his machine was worked for some months at High Royd, but the results were not such as to warrant its being kept going when there was plenty of hand labour, more especially as the colliers as a body are opposed to what they term the "iron man." We believe, however, that the machine has been greatly improved since its introduction into the Barnsley district, as the two at the Paris Exhibition have been highly spoken of by Mr. WARINGTON SMYTH, in his Official Report on "Apparatus and Processes of the Art of Mining," published in the Supplement to the *Mining Journal* of October 12. That gentleman states:—

MESSRS. JONES and LEVICK, of Blairston (Great Britain), have constructed a very portable carriage, moveable along rails by a hand-wheel, and mounting a pick at any required height in the seam, so carried in a revolving head-stock that, instead of only striking horizontally, as in most of the earlier inventions, it may be applied to any angle of inclination in which the seam lies. A pressure of 30 lbs. to 37 lbs. is applied through flexible tubes, and from 60 to 70 blows per minute are given, with a result, when all is in order, of undercutting to the depth of 3 ft. or 3½ ft. along a length of 9 yards to 15 yards in an hour. This would appear, on the face of it, to be a substitution for a great number of men, but other important advantages are gained. A better proportion of large coal is obtained, and the holding groove being very much less high in the front than where the hand-pick is employed, a comparatively small quantity of coal is cut into slack.

Still, the only true test, after all, is that of actual working in the mine, as by that only will colliery proprietors be guided in the purchase of machines. Amongst the earliest inventors may be mentioned the names of Mr. JOHN ROTHERY, MESSRS. RIDLEY and Co., Mr. HARRISON, and Messrs. FIRTH and DONISTHORPE. Little has been heard of the two first-named, and we are unable to say whether any of their machines are being worked at present. One of the most successful of the pneumatic machines at present being worked is undoubted that patented by Messrs. FIRTH, DONISTHORPE, and BOWER, of Glasgow. We believe that both the first-named gentlemen took out separate patents a few years back, and that the machines have been considerably improved since then, and for some years past have been worked at the West Ardsley Colliery, near Leeds, and also at other places, with the most satisfactory results. The invention, as stated in one of the specifications, has for its object improvements in machinery used in getting coal, stone, and other minerals. For these purposes the pickers, cutters, and apparatus are so arranged that two picks, or cutters, may be caused by the engine to act alternately; and in order that the compressed air may not at the back, or return, stroke be employed to waste, simply acting to bring back the pick or cutter, two picks, or cutters, are employed, receiving motion from the piston of an engine worked by compressed air. The engine is mounted on a suitable truck, with the picks, or cutters, the piston-rod of the engine giving motion to a lever turning on a centre intermediate of its length, and to the ends of which the two picks, or cutters, or sets, are respectively attached, so that as one pick, or cutter, or set, acts the other pick, or set, retires; consequently, the movement of the piston in either direction gives motion to one pick, or set, while at the same time the other pick, or set, retires. The picks, or cutters, may be arranged to work at right angles, or at other suitable angles to the face of the work, or to move parallel with the work, and grooves deeper and deeper therein by being set up after making each cut. In place of the trucks on which the engines and picks, or cutters, are mounted being flanged wheels, suitable for running on rails, a suitable set of rails, rollers are employed which will run on rails whether they are laid to a fixed or regulated gauge or not. One roller only acts to guide the truck, which is laid with care, whilst the other rail on which the truck moves may be out of gauge; and in order



that the rail may be the means of guiding the truck, a clip is applied at each end of the truck, which fits over and partly embraces the head of the rail, the clips being so made as to slide freely along the rail.

From the description thus given it will be seen that the machine of Messrs. FIRTH, DONISTHORPE, and BOWER combines many very important advantages for the successful and economical getting of coal, and that it can be adapted to almost any thickness of seam. Mr. WILSON, who has recently done such excellent service by his experiments with safety-lamps, informs us that he saw one of the early machines at work when he was connected with the Monkwearmouth Colliery, having visited Ardsley for the purpose of reporting as to its adaptability for working in the Durham coal field. He states that when he saw the machine of Messrs. FIRTH, DONISTHORPE, and BOWER it was working in what is called the Middleton Main seam, No. 3 north bank: 20 yards in length were measured off, when the machine commenced kiving the first time over, giving 96 strokes per minute, at a pressure of 45 lbs., the first time over occupying 46 minutes, cutting 18 inches deep; the second cutting, to a depth of 11 inches, occupied 21 minutes; and the third cutting, of 6 inches, taking 19 minutes. The whole of the depth of 35 inches only occupied 87 minutes. Mr. WILSON further states that "the machine is well suited for long wall working, more especially where there is a band, and is so adapted that the pick can be raised to suit the height of the band in the main coal seam in the North, and could be made to nick the coal, and to kive upon the 'thill,' which would enable it to be worked in the Hetton or any other seam, where they now kive upon the bottom." Like several other inventors, Messrs. FIRTH and BOWER do not intend sending their machine to compete for the prizes offered by the Lancashire coalowners, as they consider the prizes ought to be given in the same way as they are at agricultural meetings, and not a purchase of patent rights for any coalowner in England who might chance to be a member of the association.

Another well-known machine is that of Messrs. CARRETT, MARSHALL, and Co., of the Sun Foundry, Leeds, which is self-acting, and is worked by hydraulic power. It is of 3-horse power, and cuts at the rate of 15 yards per hour, 4 feet into or under the coal, at any height or angle, and at once going over, using 30 gallons of water, and making 15 strokes per minute, at about 300 lbs. pressure, the cutting tools only displacing 3 inches of the coal so undercut or holed. The machine, it is said, will suit any gradient, and can be adapted to dip or rise levels, and will force its own waste water along 2-inch pipes back to the place where the pressure was made. The machine itself is different from others in use, inasmuch as its main feature consists of a strong steel bar, to which is attached three cutters or scoops, which are forced against the coal in such a way as to make the undercut by a sort of planing action oblique to the face. It undercuts, holes, or kives with a man and boy as attendants. The coal operated on does not fall forward when becoming detached from the roof, but settles on the lower bed, thereby avoiding accidents. The length of stroke of each cutting tool is 18 inches, the actual cutting length 16 inches; consequently the three cutters jointly give a total effective depth of 4 ft. at each stroke, finishing the work as it goes along. The mechanism consists of an hydraulic reciprocating engine, adjustable to any height and angle, having a self-acting valve motion. The cylinder is 4½ inches diameter, lined with brass, and the piston is made tight with ordinary hydraulic leathers, easily renewable.

Within the piston-rod is attached the cutter bar of steel, carrying the tools or cutters, which can be varied in number to suit the depth to be holed at one operation. Whilst working there is no percussive action, either against the roof or into the coal, but simply a concentrated pressure, producing a steady reciprocating motion. There is, consequently, no dust or noise, and little wear and tear. One of the first machines, we believe, was put down in November, 1864, at the Kippax Colliery, near Leeds, belonging to Messrs. LOCKE and WARRINGTON, and has been in operation up to the present time. On its first trial it worked 2½ hours, and excavated in the first instance 3 in. of dirt, and then cut the coal 3 ft. 3 in. under for a length of 22 yards 2 ft., and liberated from the solid coal seam no less than 44 tons! The saving effected by the coal-cutter may be gathered from the fact that, at the time named, the average cost of baring the coal by hand was 8d. per ton, so that from 8 tons to 10 tons would be a good day's work for a miner.

[To be continued in next week's Mining Journal.]

#### THE RATING OF COLLIERIES.

The decision in the appeal case of the Great Western Colliery Company v. the parish of Llantrisant, which occupied the attention of the Glamorganshire Court of Quarter Sessions for four days (to which allusion was made in last week's Journal), creates considerable interest, and has given cause for not a little animadversion amongst colliery proprietors and mining engineers of the district generally. Everybody naturally supposed that the case would have been tried upon its merits, and that some definite principle would have been enunciated and confirmed upon which the rating of collieries should be permanently based. The contrary, however, seems to have been the case. The Court, doubtless, anxious to avoid the responsibility and onus of adopting any fixed principle for the rating of collieries, by confirming the rate and the opinion of the parish authorities have practically left the question and the knotty point at issue undecided. We would not for a moment hint that the talented and respected Chairman did not afford ample scope and latitude to the counsel engaged, or that he did not give a most unbiased judgment, but we have a fair right to assume that the Chairman, being a barrister by profession and education, is not able fully to understand and appreciate the difficulties which beset the working of collieries, and the large outlay necessary, and upon which large outlays, we contend, deductions in the rating ought to have been fairly charged and allowed. Questions such as these could only have been satisfactorily disposed of by a Court partly, at all events, composed of practical colliers and mining engineers. In the case of an investigation into the loss of a vessel at sea, counsel would appear on either side on behalf of their respective clients, but the Court would be composed of nautical assessors from the Board of Trade. Railway catastrophes are, generally speaking, the subject of official investigation by competent and technically-educated persons; and colliery accidents are probed by Government Inspectors, who are fully acquainted with the requirements of the colliery, so far as its ventilation and general management are concerned. Why, then, in the case of such importance as the rating of collieries should the question be left to the decision of Chancery barristers, or simply legally-educated laymen? We need scarcely say that upon the rating of collieries depends, in many instances, the successful or non-successful working of those collieries. The colliery in question is only one of many which has to pay heavy rates, notwithstanding it was worked at a dead loss of many hundreds of pounds in the course of the year. We are certainly at a loss to see upon what ground either of equity or legality a man should be made to pay rates "for the beneficial occupation of a business" which, if we may be allowed the expression, is worse than useless to him during the year for which he is charged.

Our readers will doubtless pardon our brief recapitulation of the leading facts of the case as laid before the Court of Appeal, and fully substantiated by the books of the company. The Great Western Colliery Company (Limited) is situated in the parishes of Llantrissant and Llanwunno, Glamorganshire, and is in pretty extensive working, the total quantity of coal raised during the year 1866 being 112,664 tons. Of this quantity 56,394 tons were sold at an average of 5s. 9d. per ton, producing 16,431l. 10s. 2d.; and the remaining 56,270 tons were used at the company's coke ovens, the calculated value of the coal being 3s. 11d. per ton, or 10,484l. 18s. 4d., the total produce of the colliery being thus valued at 26,915l. 8s. 6d. Although the assets were thus considerable, the expenses of the working (in consequence of special and exceptional circumstances during the year), together with the percentages upon the tenants' cash capital, and other necessary outgoings, run up the total expenses for the year to 27,870l. 8s. 5d., the loss upon the colliery, therefore, amounting to 954l. 19s. 11d.; and that in addition to royalties and rents paid to the landlord, which amount to about 4000l. more. Notwithstanding these facts, the owners of the colliery were rated to the parish of Llantrissant in the sum of 3624l. 6s. 6d., at 8½d. in the pound. It

did not seem to be a point of much contention on the part of the respondents that the deductions sought to be allowed were not fair and legitimate, and we may presume, therefore, that it may be taken for granted that deductions must be allowed for interest upon the value of both fixed and moveable plant, and also interest upon the cash capital necessary to the working of the colliery. The great questions at issue are—first, the cost of raising the coal to the surface; and, secondly, the value of the coal which was used at the coke ovens. But upon these points most assuredly the best evidence was the production of the books of the company. It was not supposed for a single moment that the entries had been falsified for the purposes of this case. Why, then, were they not believed? Exceptional circumstances might arise in the working of a colliery which would materially increase the cost of the getting of coal, a heavy fault, or a more than unusual quantity of shale, would enhance, to a considerable extent the cost of production, and where such can be fairly proved it ought to constitute an essential element in estimating the rateable value of a colliery.

Another question of an important nature in the rating of collieries was stated during the hearing of the case, and requires to be placed upon some satisfactory basis. In some parts of the county the rating is 6d. and 7d. in 1l., whereas in other parts it is 8d., 9d., and even 1s. These things conclusively prove, in our opinion, the necessity for some combined action on the part of the colliery proprietors, in order to protect their own interests, and have fairness done them in the very important subject of the rating of their properties. Colliery proprietors are quite willing to pay their fair quota towards the current expenses of the country, but that is no reason why their property should be rated at fancy prices by non-professional parish officials. We hope, therefore, that the owners will be alive to their own interests, and by some joint action endeavour to get the rating of collieries placed upon some fair and legitimate basis, as at present it is a subject of great annoyance and uncertainty to all parties. We understand a further appeal from the Court of Quarter Sessions in this instance does not lie, hence the greater necessity for measures being taken to have the subject definitely and satisfactorily argued and settled by a properly constituted court or tribunal.

**MINING INSPECTION IN THE NORTHERN DISTRICT.**—(From a Correspondent).—We are anxious for information respecting the vacant Inspectorship here. It is understood that no one is yet appointed, and the impression is that the two gentlemen lately named both failed in passing the examination.

**MINERS' SAFETY-LAMPS.**—The sole award made at the French Exhibition in connection with miners' safety-lamps was that to Mr. Cosset-Dubrule, of Lille, whose invention has several times been referred to in the *Mining Journal*. The esteem in which the lamp is held may be judged of from the fact that at the present time the inventor is supplying his lamps to various collieries in France, Belgium, and Prussia, at the rate of from 15,000 to 16,000 per annum; and the award of the Exhibition bronze medal cannot fail to still further extend its use. The lamp cannot be opened without extinguishing it, and will burn for 14 hours; it burns but 24 grammes (15½ dwts.) during that time, and gives double the light of the Davy lamp. The Dubrule lamps are made both on the Davy and on the Clanny principle.

**EXPORTS OF MACHINERY.**—The current year appears to have been a pretty good one as regards the exports of machinery from the United Kingdom. Thus the value of steam-engines sent abroad for Aug. 31 this year was 1,323,415l., as compared with 967,779l. in the first eight months of 1866, and 1,290,538l. in the first eight months of 1865; while the value of the other machinery exported to Aug. 31 this year was 1,982,232l., as compared with 1,880,985l. to the corresponding date of 1866, and 2,156,126l. to the corresponding date of 1865. The total value of the British machinery of all kinds exported to Aug. 31 this year was thus 3,305,647l., as compared with 2,848,764l. in the corresponding period of 1866, and 3,446,664l. in the corresponding period of 1865. For the whole of 1866 the corresponding total was 4,659,184l., as compared with 5,222,633l. for the whole of 1865, 4,848,592l. for the whole of 1864, 4,368,012l. for the whole of 1863, 4,092,673l. for the whole of 1862, 4,213,670l. for the whole of 1861, 3,837,821l. for the whole of 1860, 3,731,301l. for the whole of 1859, 3,599,352l. for the whole of 1858, and 3,883,669l. for the whole of 1857. The course of this branch of our exports is thus decidedly progressive, although subject to great fluctuations.

**PUDDLING BY MACHINERY.**—The improved puddling-machine invented by Mr. John Griffiths is still successfully at work at the Northfield Ironworks, near Masborough. A puddler and two underhands can turn out six 10-cwt. charges in 1½ hours, with a consumption of coal at the rate of 13½ cwt. to the ton of puddled bar. In a day upon which the working of the furnace was carefully recorded the results obtained were—charge of grey forge pig, 61 cwt. 2 qrs. 15 lbs.; puddled bar produced, 56 cwt. 20 lbs.—5 cwt. 1 qr. 23 lbs., or 8·85 per cent. waste; scrap, 2 cwt. 1 qr. 4 lbs.; total iron produced, 58 cwt. 1 qr. 24 lbs., with 13 cwt. 2 qrs. 5 lbs. of coals to the ton of bars produced.

**IMPROVEMENTS IN STEAM-ENGINES.**—An invention, which it is considered will result in a saving of fully one-half of the fuel now used, has been exhibited during the past week at the engine factory of Mr. Smith, of Holborn. As the inventor, ALEXANDER CESAR FREDERICK FRANKLIN, a most intelligent youth, 13 years of age, has not yet finally specified his patent, he prefers for the present keeping the details secret, but he states that he applies the steam on one side of the piston only, and creates a vacuum in the cylinder without condensation. That he applies the steam on one side of the piston seems certain, but, owing to the inventor's very justifiable prudence, it is impossible to discover in what part of the cylinder the vacuum is produced. To all outward appearance the engine is of the ordinary low pressure construction, except that the steam, instead of being condensed, is permitted to blow off at the return stroke, and from the general working it would be judged that the feed is cut off rather late in the stroke, and the exhaust opened very rapidly. The engine, which is horizontal, has two cylinders, about 5 inches in diameter and 9 inches in stroke, the steam being introduced at the back end of one and at the forward end of the other. The engine is undoubtedly beautifully made, and works very smoothly. With steam at 45 lbs. pressure, it was working one of Barrett and Exall's 8-horse centrifugal pumps with ease, and its action was generally admired. As soon as the specification is completed we shall publish the details of the invention, and in the meantime wish the juvenile inventor every success.

**SUPPLY OF PURE WATER TO THE METROPOLIS.**—On this subject we cannot say too much, or too often, for it is certain the health of London and suburbs is mainly dependent on a bountiful and pure supply of fresh, soft, spring water; but, where can this be obtained? is the question. This is answered at once—Not from the water company's supply reservoirs, for it is notorious that these supplies are mostly hard, harsh, chalky waters, the drinking of which frequently forms concrete or lime deposits on the stomach coatings, and produces painful gravel diseases, which are always prevalent in districts furnished only with waters drawn from the chalk beds, or directly below. Then comes another question, Can pure water be got from the Thames, and in sufficient quantities, as has been asserted? The answer is, Certainly not. The River Thames water, especially in its upper range, becomes more and more impure in its nature and character, and less and less in its quantity or volume, as proved every succeeding year. The next question that arises is, Is the proposed supply from Wales, Cumberland, Westmoreland, or other far distant lakes (at an enormous cost and outlay) likely to produce the desired result of pure, soft, wholesome drinking water, in a bountiful economic supply to poor as well as rich? Again, the answer is most decidedly, No; for the water in its long run of passage to London from the lakes will certainly not improve, but deteriorate, and the great probability is the water will iron-mould all that is soaked in it, and will be flat, stale, and unpalatable. There remains a final question, Where can pure, soft water in abundance be obtained fit for drinking, cooking, brewing, washing, dyeing, &c., where softness is a decided advantage, which softness also ensures economy in cooking, tea and coffee making, &c.? This is answered by sinking and boring 50 Artesian wells down to a depth of between 1800 and 2000 feet below the surface level of London streets, and piercing into the lower greensand stratum, which lies below the deep vein of blue gault, or belt of brick-clay, which underlies the metropolis, and crops out at Sevenoaks, in Kent, and Leighton, in Bedford. How to accomplish this in the most effective manner has been the study of Mr. W. AUSTIN, civil engineer, and he has been a pioneer for public improvements and advantages to the metropolis for more than 20 years, but the results of his labours and studies have been hitherto most unceremoniously adopted and applied by public bodies, without any re-

ward or remuneration—such, for instance, as the embanking the south as we as the north side of the Thames, constructing of subways, erection of public urinals, and other public improvements, a free use and application of Mr. W. Austin's designs, drawings, and models having been made simply because he was unprepared to fight for or defend this public companies' appropriation. A better time and opportunity is now dawning, and through the powerful guardianship and watching of the press, "might over right" will not have its away much longer, and fair-play and fair-stay will be accessible to persevering, industrious, intelligent men, who use the intellect they are gifted with in employing it for the dissemination of good to all around, for which rewards should also follow. Five Artesian wells, on W. Austin's principles, are proposed and suggested to be constructed, as early as possible, at the Crystal Palace, Trafalgar-square, Temple Gardens, Lincoln's Inn-fields, and Smithfield Market.

#### REPORT FROM SCOTLAND.

**OCT. 30.**—Owing to the religious services which take place annually at this season, and which interfere with business for several days, few transactions have taken place in our Pig-Iron market, and the shipments have been retarded by the same cause. The "bulling" operations which have been going on in this market during the past fortnight are now interfering with the course of trade, and the great mass of brokers and merchants are unwilling to purchase from the "bulls," who now hold nearly the whole of the available warrants in their hands. Yesterday, although no transactions were reported, prices gave way slightly, without leading to business; and the shipments, which are 3000 tons under those of the corresponding week of last year, gave the bias of the market to buyers—but, then, last week was broken in upon by the causes enumerated at the outset, and so the deficiency in the shipments does not count. For the week the exports were 10,550 tons, in the same week of last year they reached 13,630 tons. The entire shipments from Jan. 1 till date is 527,080 tons; same period 1866, 494,130 tons: increase, 32,950 tons. To-day there has only been two transactions reported, at 55s. 3d. cash, closing sellers at this price; buyers, 55s. 4½d. No. 1, g.m.b., 55s. 6d.; No. 3, 54s. 6d.; Gartsherrie, 61s.; Coltness, 61s.; Calder, 59s. The future course of the market is in the hands of the speculators, and will in all probability still further advance. The makers of second-class finished iron are generally well off for orders, and some are even aiming at an advance of 2s. 6d. a ton—indeed, one or two are reported to have secured it. Of the makers of first-class bars, Blochairn is taking the lead, their brand being now the favourite one. The secret of their success is said to be in the mixture of some half-dozen brands of pigs in given proportions, which renders their iron more ductile and durable. They are well off for orders, and are reported to be getting a good price for their brand. Shipbuilding iron is not in revived demand, although a pretty large business is being done about the yards in Port Glasgow and Greenock, and even nearer this city; and the low prices of the last quarter seem to have become chronic. The Dundee Pig and Bar Ironworks are being offered for private sale, and the Oakbank Engine-Works are for sale or to be let. The founders of miscellaneous small castings are still fairly employed; pipe foundries are busy, but those employed in marine work are very short of orders.

The Coal Trade is reviving in demand, and some good orders have been booked for immediate shipment at firmer prices. The home enquiry is also better for the finer seams, and there is every likelihood of an early advance. The shipments for the week were 27,925 tons, while in the corresponding week of last year they were only 23,140 tons. In Fifeshire the coalmasters have given notice of a reduction, while in this district the men in the employment of the sale coalmasters have proffered a request for an advance of 6d. a day. The minerals in the lands of East and West Tarbrax, in the immediate vicinity of the Shotts Ironworks, and extending to 571 acres, are to be let; and the Roman Camp Oilworks, with lease of shale fields, &c., are to be offered for public sale in Edinburgh next week.

Last week we noticed a discussion which had been commenced in the Assistant Engineers' Association of this city, on Mine Explosions. It was principally of an initiatory character, and nothing new was elicited. The leading point under discussion was whether the flame of the Davy lamp, if rapidly conveyed through an explosive atmosphere, would rush through the enveloping gauze, and thus ignite the gaseous atmosphere. So far as the discussion has yet gone, the question has been answered in the affirmative.

On Saturday evening, the employees of the British Metal-Extracting Company at St. Rollox, to the number of about 100, met in the school, Garngad-road, to present Mr. James N. Dryburgh, their late resident manager, with a mark of their regard, on the occasion of his leaving Glasgow to take the management of the extensive works of the Tyno Metal-Extracting Company, at Hebburn, near Newcastle. Mr. William Henderson, the inventor and patentee of the chemical process, so successfully worked at Glasgow, Newcastle, Birmingham, and elsewhere, occupied the chair. In a complimentary address, the chairman, in the name of the work-people, presented Mr. Dryburgh with a handsome gold guard-chain and elegant walking-stick, the latter beautifully carved and silver-mounted, the handwork of one of the tradesmen present; together with a gold ring and work-box for Mrs. Dryburgh—the whole being the gifts of the workmen at Charles-street, St. Rollox. Mr. Dryburgh, who was received by the meeting with much enthusiasm, made a suitable and impressive reply.

#### REPORT FROM MONMOUTH AND SOUTH WALES.

**OCT. 31.**—Since the new quarter has been fairly entered upon, there can be no doubt that, upon the whole, a better feeling is being evinced in the Welsh Iron Trade, and makers entertain strong hopes that the trade is slowly recovering from the effects of the long-continued depression, and that gradually a better state of things is approaching, although at the present time outward appearances at many of the works in the district are anything but cheerful; but, as already stated, it cannot be expected that the vigour which formerly characterised the trade will return all at once, after a depression hitherto unparalleled. There is a probability of Indian engagements being somewhat extensive, and already there are three or four small contracts in the market for axes, chairs, &c., which, if they do not come to South Wales, will tend to lessen the competition of other districts. The Russian trade may now be said to have closed for the season, the last cargo of rails having been shipped for the Baltic at the commencement of the present week, and until the commencement of next spring makers will have to depend mainly on other markets for orders to keep their hands employed during the winter months. From America hopes are entertained of a good demand springing up, as some of the railway sections in that country are run down to a sad state for want of renewals, which will shortly be made, the companies having found out that the cost of tinkering their permanent way has been greater than the cost of good and substantial repairs, executed at the proper time, would have been. Several cargoes have of late been cleared for the United States, and as that country has hitherto been a good customer to South Wales for her tough Erie rails, there is every reason to believe that a fair share of support will henceforth be received from America. On home account some of the leading railway companies have commenced making purchases, but as yet to no large extent, although it is reported that one of the works in the district has received an order for rails sufficient to keep the hands employed for some time to come. As the railway companies have nearly recovered from their financial difficulties they will shortly be in the market for large quantities of rails and other material; the number of miles of permanent way requiring relaying being larger than ever known, and its present state is such as requires almost immediate attention. For pig-iron there is a good demand, and transactions continue to be reported at makers' quotations. For tin-plates the demand during the past week has somewhat slackened, but makers show no inclination to enter into transactions other than at list prices.

In the Steam-Coal Trade no material change has taken place since last report, and the exports keep about the same, large quantities still being sent to Aden and Bombay. There is an average demand from the principal continental markets, but it is not at all improbable that increased supplies will soon be required, consequent upon the Italian difficulty. The clearances to the Eastern markets, continue rather large, and there is no doubt that the requirements of that quarter will keep up the little increase of vitality which has lately set in. At Birkenhead the shipments of Welsh coal continue about the same. Coastwise the shipments are a little above the average, and the inland consumption has not yet increased to the extent many anticipated.

The Dylais Coal and Ironworks, situate at the head of the Dylais Valley, were brought to the hammer on Saturday last, at Swansea. The property forms an area of about 1000 acres in a ring fence. The Oallwyn Estate consists of 700 acres out of the 1000, and comprises in the section the upper 4-feet coal, the 18-feet, the 9-feet, the lower 4-feet, and other veins, making a total workable thickness of between 30 and 40 feet, and on the property is every requisite for carrying on an extensive iron trade. There was a large attendance of capitalists at the sale, and after a brisk competition, Mr. W. L. Banks, of Brosilva, near Hereford, was declared the purchaser.

With respect to the Blaiva and Cwm Celyn Works, negotiations are still going on, and there are strong hopes of a sale taking place. There has been an explosion on board the French brig, St. Brieux, in the Bute Docks, Cardiff, by which one sailor has had his thigh broken, and two or three others of the crew have been slightly injured. The accident is supposed to have occurred through the ignition of the gas liberated from the cargo of Powell's Duffryn steam-coal, the crew having closed the hatches, notwithstanding the caution they had received not to do so. The deck was blown up, and the brig otherwise much damaged.

It was announced in last week's Journal that it was in contemplation to commence the new docks at Llanelly without delay. An important step in advance has just been made, the contracts, exclusive of the gates and outer works, having been let to Messrs. Griffiths and Thomas, contractors, Newport, for 35,000l. The gates and outer works are estimated by the engineer to cost another 7500l. The scheme has been long talked of, but it has now been set



going in good earnest; there is every probability of the contractors finishing the work in a reasonable period.

The new dock works at Cardiff are being pushed forward with an energy which gives ample promise of their being speedily completed. Upwards of 1000 feet of the new embankment has been carried outwards to form part of the low-water pier, and about 500 feet more has to be added. Beyond this solid embankment there are to be 1200 feet more of open work, and for the carrying out of this the permanent piles have been driven for a distance of 850 ft. Some idea of the stone required, and now deposited for use, may be gathered from the monthly statement that the quantity of stone brought down from the Pwllpant Quarries is 3000 tons, and 200 men are employed at the quarries getting out the stone, and twice that number are engaged upon the works, which when completed will afford considerable accommodation to coasting vessels, as they will be able to arrive and depart at any state of the tide, which will be a boon owners of coasting vessels little dreamt of enjoying. Mr. McLean, the chief engineer of the works, is a candidate for the new seat in Staffordshire, created by the passing of the late Reform Bill.

A meeting of the Barry Port and Gwendraeth Valley Railway Company has been held at Barry Port, at which it was resolved to make the line up the Valley without delay. When the line is completed the valuable mineral resources of the district will be opened out, but which has hitherto been prevented for want of railway communication with the Port of Barry and other places.

The arrivals at Swansea include—The Integrity from Almeria, with 150 tons of copper ore to order; Ocean King from Hendekip, with 510 tons of copper ore and 100 tons of regulus; for Richardson and Co.; Diogenes from Sunderland, with a cargo of timber for D. W. Johns; Aglaet Charles from Santander with 240 tons of zinc ore forwarded to order.

**FOREST OF DEAN.**—There is nothing new to report with respect to the district trade. Quarter-day prices are adhered to by the ironmasters, and the Coal Trade continues to evince signs of activity. Orders are very abundantly reaching the Forest, and both on the Cinderford and Bilson side, and the Parkend and Coleford districts, the same accounts may be given, at prices in advance upon late rates, and higher than has been remembered for some time. The opening of new collieries is spoken of and contemplated as a step "onward." If the Forest of Dean is to become what many persons prophesy, its minerals must be yet extensively developed. There are vast tracts of land under which lie large bodies of coal and iron ore. There are many appropriate gales, very valuable, but allowed to remain undisturbed in their crust. One of these fields will be offered for sale at the Spread Eagle Hotel, Gloucester, on Nov. 5. On lot 1, 2000 ft. have already been paid in respect of dead rents. The royalty payable to the Crown for the coal got is 5d. per ton, and the acreage is 318, and the estimated quantity of coal, according to the opinion of competent authorities, is 4,000,000 tons. Lot 3 is much the same. There is a third lot to be offered—"Tutthorn Iron Mine," on which 401 dead rent has been paid, and Mr. Foster Brown, the deputy-gaveller, estimates this mine to contain 200,000 tons of ore.

The Tin-plate Trade bears the same favourable comparison to that which has characterised it so many months. It is most healthily placed, and the future in every respect is not the less hopeful. Other branches maintain their wonted spirit, and altogether the Forest of Dean this week presents signs which pleasantly contrast with other districts. The shipping at the small ports of Bullo Pill and Lydney is improving, as is usually the case at this period of the year.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

OCT. 31.—There is not much actual difference in the Iron Trade, but, on the whole, the anticipations expressed in this letter some weeks ago that the trade would, probably, get flatter before Christmas seem not unlikely to be fulfilled. There can be no doubt that the workmen are suffering a good deal, as short time has prevailed for a long period, and the high price of provisions is the more felt as the weekly wages are low, and especially as the high rate of wages paid a few years back, and which was supposed to be only the prelude to an era of prosperity for the working classes, has made the sad experience of late years harder to bear. It is worthy of notice that the high price of butcher's meat has led many persons to commence killing who had before no idea of adopting such a line of business, and prices are in this way being considerably reduced.

The creation of a third division of the county of Stafford for parliamentary purposes is already bringing candidates into the field. Mr. McLean, of the firm of McLean and Stileman, civil engineers, of Westminster, and who is the proprietor of extensive coal mines at Crannock Chase, in this county, is a candidate in what is termed the advanced Liberal interest. Mr. John Hartley, the leading partner of the firm of G. B. Thorneycroft and Co., ironmasters and colliery proprietors, of Wolverhampton, who is the owner of extensive landed property in the county, is also a candidate for the division. Mr. Hartley is regarded as a moderate Liberal, and is a man who would, no doubt, support any efficient Government, would oppose factious motions, and would give impartial consideration to both sides of a question.

The miners' dispute in South Derbyshire is still going on. A meeting of miners was held at Bilston on Monday evening to ask support for their locked out, and to urge workmen not to take their places. The meeting was but thinly attended. South Staffordshire colliers have not much to spare.

The chartermaster of Messrs. Harper and Bastock, colliery proprietors, at Spring Vale Colliery, was on Wednesday fined 21, and costs, for paying his men elsewhere than at the colliery. The prosecutors were the proprietors of the colliery. Of course the defendant had many excuses. He said the workmen had asked him to pay them where he had been in the habit of doing so, for the sake of their convenience, and that there was danger of being robbed in carrying a large amount of money through the fields to the colliery.

Two men have been killed by falls of roof or coal in North Staffordshire. The one worked at the Bells Mill Colliery, near Hanley, and after firing a shot was buried in some tons of earth and coal, and was taken out dead. The other man, who was employed at the mines of the Chatterley Company, near Tunstall, had examined the roof, and thought it sound just before a fall killed him. In each case the verdict was "Accidental Death."

Mr. Thomas Hughes, M.P., has this week been laying the foundation stone of a new co-operative store at Silverdale, in North Staffordshire, where there are extensive mines of ironstone and coal being worked. The society which is building the stores has existed six years and a half. As a rule, co-operative institutions have not flourished very greatly in Staffordshire. Credit is the rock on which most of these enterprises split.

#### WHAT SHALL BE THE SYSTEM OF EDUCATION FOR OUR ARTIZANS?

The iron and coal masters throughout all parts of the kingdom will have to turn their attention, at once and resolutely, to this question at their different trade gatherings and consultations, and in their respective public capacities, in order that it may be such as shall make their operatives not the less, but the more, fitted for their everyday duties. For there is danger that even the first-named result may follow upon the imparting of certain school instruction. This was remarkably well illustrated in the observations of Mr. HARTLEY, of Wolverhampton, at the distribution of iron and coal masters' prizes, alluded to in last week's Journal. The question has, therefore, become a trade question of much importance, consequently all information upon what is being done in this matter in the iron and colliery districts calls for attention, with a view either that it may form a precedent, a warning, or assist in the discussions yet to come off in other similar districts. Influenced by these views, we have prepared the following resume of what is being done in the capital of the Midlands:—

For some time past the Town Council of Birmingham have had before them the question of popular education. A meeting of the council was held on Tuesday last, when the subject was discussed to considerable length. It was introduced by a motion from Mr. GEORGE DIXON, the recently-elected member for that borough, who resigned the office of mayor in order to qualify. His motion was—"That in the opinion of this council it is of paramount importance that corporate bodies should be empowered to levy rates for educational purposes." It was then moved by Mr. Councillor LOWE, and seconded by Mr. Councillor BROOKE SMITH, as an amendment—"That before any definite action is taken by this council in the matter of compulsory rating for educational purposes, it is of the highest importance that an expression of opinion should be obtained from the burgesses at large, and with the view of obtaining the sentiments of the ratepayers, the mayor be respectfully requested to call a public meeting in the Town Hall to consider the question." Afterwards Alderman HOLLAND moved, as a second amendment—"That in the opinion of this council there should be established and maintained in England and Wales a national and compulsory system of education." Then Alderman OSBORNE proposed a third amendment, which was the following—"That this council, considering that a system of national education is of paramount importance to the well-being of the community, is of opinion that the best means of effecting this object would be of empowering municipal and other corporate bodies to levy rates for the purpose of founding and supporting free public schools, which shall be open to all classes of the community." After an attempt to postpone the discussion had been made, but failed, the matter was gone into. The amendments defined pretty clearly the views of the objectors to the motion. The speakers upon them generally thought the original proposition fell short of the requirements of the case at the present time.

Mr. PICKERIS said that the solution of the question seemed to be absolutely necessary, in consequence of the change in the position of the industrial classes, brought about through recent political events, which had taken place during the past few months. Where political freedom, commercial prosperity, and material wealth existed, wide-spread ignorance amongst the industrial classes seemed to be a blot upon the national character, and it behoved everyone of them to wipe away that blot. He admitted the correctness of the theory that parents were the natural guardians of the children, and responsible for their education, but the blind could not lead the blind, and inasmuch as the parents of this generation could not be reached, they would attempt to reach those of the next, for educating the children of this.

Mr. J. GRAHAM said that the thorough adoption of the Factory Acts would be a great benefit to Birmingham. Mr. DIXON, during an exhaustive speech, in reply, said they must remember that the Factory Acts had already been passed, and that that was not a question for the future. It was now their duty, seeing

that the Act was passed to provide schools for the children who, hereafter, were to be compelled to go to school before they were allowed to be employed in factories. He had been assured by Mr. SARGANT, and by Mr. EVANS, the head master of King Edward's Grammar School, that the supply of educational facilities in Birmingham was utterly inadequate to the demand. What he recommended to the Council was to say that a national system of education was desirable, but that the manner in which that national system should be carried out was that powers should be given to local bodies to levy rates, and to superintend the education paid for by those rates; and that they should have a right—as the managers of schools had now—to claim State aid in proportion to results obtained. He was sure that a system of the kind he suggested was necessary. Some asked for increased support for the present system, saying that nothing more was needed; but he believed there were schools enough and funds enough already, but not children enough going to school. The Factory Acts, the Reformatories Act, if properly carried out, would do a great deal; but he was confident that they could not do all.

Upon a division, Alderman HOLLAND's amendment was carried; the number voting for it being 35; against it, 15; neutral, 3. A committee was then appointed to consider the best means of giving effect to the amendment.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

OCT. 31.—The dispute in South Derbyshire is attracting more than usual attention, as it has assumed the appearance of a contest between the coalowners on the one side, and their late workmen, aided by the South Yorkshire Miners' Association, on the other. Indeed, the latter may be said to be powerless, as but for the support they have afforded to the men who have been out for some months the dispute would have long since terminated. During the week meetings have been held in various parts of the district, and liberal promises of pecuniary aid given. There are now more than 900 persons out, who are receiving at the rate of 7s. per week for each male adult, and 1s. per week for each child. On Wednesday, Mr. P. Casey, of Ramsey, arrived by train at Church Gresley, and was very warmly received at the station. Indeed, his presence was looked forward to with more than usual interest, seeing that he brought with him no less than 2001, towards their support. Still, there is not the slightest prospect of terms being come to, seeing that the masters are as determined as ever not to employ Union hands. There is very little alteration in the state of the Iron Trade, which continues quiet, although one or two large establishments are tolerably well off, and the foundries in particular. For Coal there is a very good demand for household use, and for gas-making purposes. A very good trade is being done to London, although as yet there has been no considerable increase in the quantity carried by the Midland now its through route is open.

Business in Sheffield continues slack, and some of the furnaces in the neighbourhood have been put out. Bessemer steel appears to be the article in most request, principally for rails, for which the demand has kept up well. In iron rails, plates, and sheets things are very quiet; there is rather more doing, however, in the neighbouring town of Rotherham, where there are some large orders in hand for heavy railway material for exportation. There is scarcely so much doing in gas and water pipes. At Milton and Elsecar there is continued activity in all branches, there being a large output of rails, sheets, and bars. Boiler-plates are also being largely manufactured, and the workmen are now in a better position than they have been for the last two years. The machine makers in the district, more especially those connected with the collieries, are well up for orders.

The South Yorkshire Coal Trade continues moderately brisk, and during the week there has been an increased demand for steam coal for Hull and Grimsby for shipment. To Goole also there has been more doing, and several cargoes have been dispatched from that port to Lowestoft, Southampton, and Plymouth. To Lancashire there has been a slight falling off in engine coal, but there is a full average tonnage of gas nuts being sent by the Manchester, Sheffield, and Lincolnshire Railway. In London and the South continues steady. Coke remains unaltered, the demand being sufficient to clear stocks as fast as produced. There have been several disputes in the district, most of which have been arranged; that at Pinder Oaks by conceding two-thirds of the demand made by the men.

The prospects of a speedy opening of the Oaks Colliery are now more favourable than they have been. On Monday the men went into the workings in their air-proof dresses, and built a stopping near the engine-plane, thus closing all the entrances into the workings, and allowing them to work at the bottom. On Wednesday the task of opening the No. 2 shaft, where there is a wood scaffolding down about 30 yards, on which there is a considerable quantity of spoil, was commenced, so that in the course of a few days the work of bringing out the platform will be attempted. The cupola shaft, it is also expected, will be emptied, for which purpose the necessary head-gearing has been put up. Staking operations at the new shaft at Ardsley, which is to join the Oaks, have been suspended, owing to the water, for the pumping out of which the necessary machinery is being put up.

#### MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,

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BENJ. WALKER and J. F. AUGUSTUS, of Leeds, engineers, have specified an invention for improvements in machinery for crushing stones, minerals, and other like substances. According to this invention, the rotary shaft, and the crank, or eccentric, or cam, ordinarily used are dispensed with, and the shaft is connected to a crushing-surface, which is more directly on the movable crushing-surface. The manner in which the steam-engine is thus more directly connected with the movable crushing-surface may, to some extent, be varied. In some cases, the movable crushing-surface is applied directly to the end of a piston-rod of a horizontal steam-engine, and the movable crushing-surface is made to move or slide to and from the fixed crushing-surface, the faces of the two crushing-surfaces being inclined to each other, so as to include the requisite hopper-like angular space between them, or the piston-rod of a steam-engine may be connected to a fixed crushing-surface, which moves on a fulcrum or axle, or the piston-rod may be attached by means of connecting-rods to the movable crushing-furnace; again, the steam-engine, by the aid of its piston-rod, may give motion to a lever connected to the movable crushing-surface, in which case the inventors state that they prefer to employ toggle-jointed levers.

A specification on the interesting subject of machinery for boring and excavating coal and other minerals has been filed by W. READ, of Newton Heath, near Manchester, millwright. The invention consists in boring holes into the coal or other mineral to be excavated by means of an instrument similar to a carpenter's brace-bit. This instrument is pushed forward and turned round by a screw and nut. The bit has teeth on its circumference, gearing into a pinion, fixed to a shaft supported in a frame, through which the screw is passed. On this shaft is a second toothed pinion, on which there are one, two, or several more than are on the pinion for driving the nut, and this second pinion is driven by a wheel, loose on the screw, but connected with it by a sliding lock, keyed and turned round by a chain or otherwise. As the hole is being bored, water under pressure is admitted, in order to clear out the borings. When the hole is bored to the requisite depth the boring-tool is removed, and another instrument, consisting of a nut, provided with four or other convenient number of expanding wedges, is put into the hole; the wedges are then expanded, and forced into the coal or other mineral by a sliding tube driven by a nut on the screw. When the wedges are expanded, the instrument with the expanded wedges is drawn back by continuing the motion of the screw, and it brings the mineral to be excavated. The machinery is put in motion by compressed air or otherwise.

The recent applications for patent include some few to which reference may be made in connection with the subject of this paper, especially the following:—LEWIS, fans for ventilating mines or propelling air into furnaces.—WHITE, ventilating buildings.—ABEL, pulverising materials for porcelain paste.—NORTON, sinking or forming wells.—DORSETT, DORSETT, and BLYTHE, burning hydrocarbon gases, and economising fuel.—CAPTAIN SMITH, armour-plates.—DE SILVA, coating iron, steel, and other vessels.—GLOVER, furnaces.—POTTS, moulds for metal screws.

Oppositions intended to the following must be lodged on or before Nov. 19:—OXFORD, iron and steel.—FAIRLEY, preventing overwinding in mines.—PERKINS, petroleum, paraffin, and tar stills.—HALL and PARSONS, fuel.—ATCHISON and SOUTH, hydrocarbon gas and heating.—AMOTT, bricks, coal, peat, &c.—PEARCE, furnaces.

**CONCRETE HOUSES.**—It seems probable that at no distant period the use of concrete as a building material will be, to a great extent, returned to in this country, owing to the great facilities for building concrete houses offered by the improved moulding machines patented by Mr. J. TALL, of Southwark. Mr. Tall proposes to employ an apparatus composed chiefly of iron and zinc, laid the whole length of every wall of the building at one time. The apparatus is 1 ft. 9 in. high, and will build 18½ in. at a time, being moved every day, so that every wall of the house or houses, be they two or twenty, is daily increased by 18½ inches. A pair of square-built houses, 15 ft. frontage each and 26 ft. deep, could be built with an apparatus costing 821. 10s., and the patentee's royalty is 5s. per room; this, with the lessened cost of materials, permits of 9-inch work being built at a cost of from 2s. to 2s. 6d. per square yard superficial. The patentee claims that, amongst many other advantages, the cost of construction is half that of brick and mortar, there is ten times the strength, and the necessary materials are found in every part of the kingdom.

**SAFETY-VALVES.**—In constructing and adapting safety-valves for steam-boilers, it is desirable to ensure that so soon as the pressure of steam in the boiler or generator reaches the pressure at which it should be relieved the safety-valve shall open wide for the free escape of steam, and that the valve shall remain open until the pressure in the boiler is reduced below the pressure by which the valve was opened; and it is desirable also that a safety-valve should be so organised that the engineer may be able to adjust it, so that it will close at any desired number of pounds pressure below the pressure at which it will be opened; to accomplish these results the main object of the invention of Mr. G. W. RICHARDSON, of Troy, U.S. In order to provide a more free escape for the steam than can be obtained by safety-valves, as heretofore constructed, and to ensure the keeping of the valve open until the pressure of the steam in the boiler shall have fallen below the pressure which would be required to open the valve, the valve is formed with a surface outside of the ground joint for the escaping steam to act against; this extended surface is produced by a cap plate, secured to or cast with the valve in such manner as to leave an open space between the two for the passage of steam to a central aperture in the cap, through which steam can escape when the valve is lifted from its seat. The central aperture is surrounded by a prolonged cylindrical flange threaded on the outside, to which is fitted a threaded ring, that can be turned up or down to any desired elevation, and there secured by a set-screw. A disc-like projection on the valve rod extends over the said central aperture in the cap-plate, and at such an elevation that the upper edge of the adjustable ring

can be set in contact with it, or let down so far below it as to leave sufficient space for the free escape of steam. When a spring is used to hold down the valve the increased surface obtained for the steam to act against will ensure the contracting valve is forced up. By this means the regulating or adjusting of the spring at the aperture for the escape of the steam beyond the surface outside of the ground joint may be effected at pleasure. To prevent the guides and stem of a valve, controlled by a spring from binding, and thereby impeding the movements of the valve, the pin or stem which receives the tension of the spring bears on the valve, so far below the plane of the valve seat that the force of the spring shall always be communicated to the valve in the direction of its axis.

**PETROLEUM AS STEAM FUEL.**—An invention the essential object of which is to facilitate the burning of mineral and other oils for producing heat and generating steam has been provisionally specified by Mr. J. E. DUYCK, of Glasgow; it consists in placing within the furnace wherein heat is to be developed a vessel or apparatus, which may be of various shapes, according to the form of the furnace wherein it is to be applied. The vessel or apparatus is caused to revolve by gearing actuated by a steam-engine, or in any other convenient manner. The shaft upon which the vessel or apparatus revolves is hollow or tubular, and it is connected by a pipe with the cylinder in which the oil is contained; by means of this pipe the oil is conducted to the interior of the vessel or apparatus. The tubular shaft at the centre of the apparatus is provided with feed pipes, which radiate from the outer casing of the apparatus; this is fitted with either wire gauze, loose wires, or asbestos, or asbestos and wire combined, so as to produce an incandescent wick, and burners are fixed on the exterior, which may or may not be ignited. The construction of the apparatus enables either steam or air, separate or combined, to be blown or forced through it by suitable connections from an air-vessel and boiler with the tubular shaft, or steam and air separate or combined may be blown into the space between the furnace and the oil-burning apparatus, so as to take up the surplus carbon of the oils and assist their combustion. Rotation is imparted to the apparatus to facilitate the passage of the oils to the burners, which is effected by gravitation or other form of force causing the oil to flow through each feed-pipe to the exterior during the time one-half of the vessel or apparatus passes through the lower half of its revolution.

#### The Paris International Exhibition.

##### ENGLISH AND FOREIGN COAL.

The subject of coal supply is one well worth going thoroughly into, but which it is not possible to be well done in this article. It will be useful, however, to note the more prominent samples which have been sent, but of these there have been no public trials giving any practical or reliable results, and even of the coals burnt in supplying the motive power for the machinery at work in the building and in the annexes no general record has been kept, and the acquirement of a good deal of knowledge which might have been useful has been missed. The unrivalled reputation of Welsh coal as a steam fuel has been well maintained. Samples are exhibited by the well-known firms of Davis and Sons, of Cardiff, who show very fine specimens of the "Upper four-foot seam" and "Nine-foot seam." This is the only house, except Nixon, Taylor, and Co., and the Bwlla Colliery Company, who supply separately the Upper Four-foot seam, acknowledged to be the best of all steam coals. This superior vein sells for from 10 to 12 per cent. more even than the steam fuel usually shipped from Cardiff, such fuel consisting of mixed coals, as is the case with the "Davis Merthyr smokeless steam coal," which is a mixture of the Four-foot, Six-foot, and Nine-foot seams, and which is highly esteemed for the reason that the Upper Four-foot seam being worked in their own mines there is a large proportion of it in the coal. The celebrated Upper Four-foot Welsh coal has been used exclusively by the Messageries Impériales for their Brazilian line for the last three or four years, their contract compelling them to maintain the highest rate of speed. The Upper Four-foot coal is also used by the Transatlantic line of mail boats, the Liverpool, Philadelphia, and New York Company, the Peninsular and Oriental, and the Cunard Companies, the West India Royal Mail, and other of the most renowned steam-ship companies. The amount of business done by this firm is some 450,000 tons a year; and as the Nixons, who are only represented in the Exhibition by hand samples, ship probably about the same, the trade in this commodity at Cardiff becomes, in the transactions of those two houses alone, a matter of really national importance. Besides these large proprietors other Welsh houses have exhibits. Among these the Bodrhyngant Coal Company have sent samples of their first-rate locomotive coal, so largely used on our English railways, and so extensively exported for the same service. The Aberdare Coal Company also exhibit steam coals; and the Glamorgan Compressed Coal Company some samples of their fuel manufactured from the small waste of the best steam coal of the South Wales basin. This "patent fuel" is commonly regarded as the best made in England; but the Paris Jury have passed it over entirely. The Glamorgan Company also show samples of compressed fuel. The awards made by the Paris Jury have been bronze medals to Davis and Sons, the Bodrhyngant Company, the Aberdare Coal Company, and the Bwlla Colliery Company. The Bwlla Company's Marine Merthyr is the only coal that has been practically tested at the Exhibition, it being exclusively used by the British Commission to raise steam in that department; and it is this Welsh coal which has been tested under Glasgow's boilers with great success, as certified by Captain Beaumont, the superintendent of the machinery department. The Transatlantic line of mail boats is supplied exclusively by the Bwlla Company, and so well satisfied are they with their coal that they are under engagement with them to take 100,000 tons annually for many years to come.

Other samples of Welsh coals are shown in connection with various ironworks, such as the Blaenavon, the Kilgerry, and Ystalyfera ironworks. The Wigan Company show cannel, gas, and coke; and the Duke of Hamilton some of his celebrated gas coal, from the Lesmahagow mines in Scotland, of which no notice has been taken by the jurors. In the park is a specimen of mail boat coal, from Barnsley. From the British colonies there is a goodly show of samples. In the park there is a tall pyramid of specimens from the Pictou Mine, in Nova Scotia, decorated with a silver medal, notwithstanding the faults of the particular veins of which it is built up are clearly visible. Australia appears to be very rich in coals. There are in New South Wales eleven seams now worked, at various levels, from 400 fathoms down to 1500 fathoms above the level of the sea. The present shipments are stated at 30,000 tons weekly. The coals are on the average of very good quality; some of them, highly bituminous, are greatly esteemed in the Melbourne and Californian markets. For those put out at the Newcastle collieries the price is 3s. 3d., delivered on board, and 5s. per ton for nuts, as the small screened fragments used in the blast furnaces are termed. The East Maitland coal, used by the steamers plying with Sydney give as good results, according to the statements of the exhibitors, as the best English coals, which, however, can only be got there in a very deteriorated state, and at double the price of native coal.

Natal exhibits three samples of coal of indifferent quality, but the actual cost prices are not stated. In the official catalogue, under the heading of prices of produce in the colonial markets, coals are quoted at from 1s. to 12s. per cwt., or about 22s. to 67s. the ton; we suspect, however, these must be the quotations of British fuels.

Our famous Newcastle coals are represented by a case of excellent specimens from the mines of Earl Vane, at Sunderland and Seaham, who shows also a very fine sample of coke; light, lead-like in colour, and good in the grain, as the best coke should be. There is, further, an example of steam coal, but nothing like as good as the Welsh. There is a like exhibition by the Sunderland Chamber of Commerce, in which the various qualities of coals from Haswell, Ryhope, and other celebrated mines in that neighbourhood are represented. Amongst them is a very fine specimen of gas coal.

The subject of the French coal supply, from the great number of exhibits, cannot be properly treated in a few lines. The Government authorities deserve high praise for the handsome and valuable book in which they have recorded the main features of the mineral wealth of the country, and for the excellent manuscript maps displayed in the French section, on which they have laid down the forest tracks and the coal areas. These volumes are so full of information that they could only be properly noticed in a lengthy review. The price of Charleroi coals delivered at Anicieres, the principal Paris depot, is, we are informed, from 42 to 45 francs per ton. The French coals would cost little less delivered at that place, but the price will probably depend mainly upon the distance from the mines; the inland navigation of rivers and canals are mostly used for the transmission, and as yet the railways have not been largely brought into play for this transport. Amongst the most conspicuous exhibits of French coal is that by the Compagnie des Mines de la Grand Combe, who show samples from 16 veins, varying from 55 centimetres to 5 metres 20 centimetres in workable thickness. Their coals are chiefly "gras" and "très gras," with a few samples of "sec," or steam coal, which is said to be used by the Messageries Impériales and the Chemin de Fer de la Méditerranée et du Midi, and the Austrian and Lombardy Railway. The Grand Combe company also make "patent fuel." Their coke is decidedly bad, according to our examination of the samples. Mines de Bethune, of the Basse Loire, of the Puy-du-Dôme, are also conspicuous exhibitors. The coals are of the classes already noticed, and here, in all cases, as generally everywhere in France, the industry of patent fuel, or "brignes agglomérées," as they are termed, is seemingly actively developed.

Belgium, as might be expected, comes out strongly in the coal line. A considerable display of compressed fuel, composed of Charleroi coal waste, is made by M. Felix de Haynin, of the Marénille Works, who has been fortunate in obtaining a gold prize medal. By his process the compound fuel is made in cylindrical bars, and not in bricks. His machinery seems to be well adapted for its purpose. The Mons district has a great many representatives. Amongst these the Société Anonyme des Charbonnages de Belleuve, who show some very good samples, but nothing like the English coals. Their steam coal is very fair; as is a large block exhibited by the Compagnie des Charbonnages Belges of Aargre, but who also show some very bad coke. The Société de Bousies produces a highly bituminous gas coal. The Société Crachet and other companies deal largely in washed coke, but the coals are not generally of a quality to satisfy English notions of excellence. The peculiar metallic leaded aspect which denotes the pure smokeless burning article is not a prominent feature of these manufactures.

The Society John Cockerill and Co., of Seraing, appear in the various characters of ironmasters, shipbuilders, and colliery owners. They send samples from four pits, whence they raise about 250,000 tons annually. They also coke with five sets, or 185 ovens, and have further engaged in the operations two crushing and two washing machines, with eight steam-engines for discharging the ovens, the produce of which in the year exceeds 80,000 tons. There are numerous other exhibitors of Belgian coals, and the manufacture of "patent" or pressed fuel is most extensively carried on in that country. Large quantities of coal tar and pitch are imported into Antwerp from England, for this industry.

The Spanish samples, which have caused our digression into the subject of mineral fuels, deserve the most careful notice. They are large, and of really fine quality; and there cannot be a doubt that when railroads, or other cheap means of transport, are provided, Spanish coal will be a formidable rival of the British article, but we need not fear this competition, as a slight check to



our exportations might be a national benefit, and there certainly are not likely to be too many good coals in the market at any time; as yet, however, the exportation of the Spanish iron is but beginning—one mine only in Asturias being in full work—and the products hardly estimated in a commercial point of view; but when the coal can be purchased at the Mediterranean shore at something like 10s. or 10s. 6d. the Spaniards will undoubtedly take a large share of the Mediterranean trade. The Société Houillère et Métallurgique de Belmez have sent three very large blocks, one about 7 ft. long by over 3 ft. in breadth and depth. These coals display very good qualities indeed. There are other excellent coals in the Spanish exhibition.

The Prussians draw their chief supply of mineral fuel from Aachen, Waldenburg, Saarbrück, Silésie, and Westphalia, the production increasing in amount in the order of succession given above, and ranging in 1865 from 781,200 tons at Aachen or Aix-la-Chapelle to 9,165,700 tons in Westphalia—the total output being 18,592,100 tons. The total in 1855, extracted from the same district, was 8,107,850 tons. Of the quality no high character can be given from the samples exhibited.

In the North German courts there is also a large series of coals, cokes, and lignites, by Kasten, of Hanover, and there are 50 exhibitors—ten by the direction of the Royal Society, and 72 by private individuals and companies. Very instructive plans of the Saarbrück works and maps of the Westphalian coal field have been prepared; and in this section the magnificent collection of coal plants, by Prof. Goopert deserves acknowledgments. The Professor has been long known among geologists in every land for his excellent works upon the vegetation that flourishes in the coal and lignite layers, and his beautiful plates of lithographic drawings have been as universally admired. The collection displayed is only a portion of the instructive treasures he has gathered, but is more than amply sufficient to excite the liveliest interest. There were two important mineral fuel producing periods—the older carboniferous or true coal, and that of the newer lignites of the middle tertiary age. Of the trees and plants of both periods M. Goopert shows the most remarkable examples. A portion of the enormous *Coniopteris* from the "brown coal" (lignite) of the Miocene beds, near Broussau, and the huge knot of *Protolaria*, the branch of a small trunk of 36 ft. in girth—the largest known—extracted from the beds of lignite at Saar, in Silésie, convey a good idea of the large dimensions attained in the forests of the luxuriant tertiary lands. The huge fragments of *Sapindaria*, and the numbers of curious specimens from the true coal strata, convey also the clearest ideas of the gigantic reeds and ferns that commingled with that rank growth of bituminous producing marsh plants, to whose long-continued decay and luxuriance we owe our vast and inestimable stores of mineral combustibles—bituminous coal and anthracite—which contribute so largely to the development of our present civilisation.

In the Austrian court are several important shows of coals. Elaborate maps and sections are displayed by Henri Drasche, of Vienna, who gives the total number of workmen, with their families, employed by him at 5295 persons, and the annual production at 360,000 tons. A cube of coal is also shown by the Society for Working Mines and Foundries at Cronstadt; but we have no further particulars of these works. The Northern Railway Company and M. Anton Riegel have sent some very good "naton" or, more correctly expressed, compressed fuel; the latter article having gained a silver medal. The pressed coal and coke of the former company is bad. Notwithstanding any good seams which Austria possesses, it is still a fact that the Imperial Marine uses almost exclusively Welsh coals, which are in large quantities exported to Trieste. The Austrian Lloyd Company and some of the southern railways also use Welsh coals.

The United States make very little show, and what is exhibited is not by any means good. Russia shows a sculptured column of anthracite, and Portugal samples from the San Pedro de Cova and other mines.

It is easy to perceive from this sketchy account how exceedingly interesting and instructive would have been the results if some efficient system of testing of the various European coals had been made; and, indeed, it is difficult to understand, in the absence of anything like even common analyses, upon what grounds prizes and medals can have been awarded. No doubt the eye is a good test, but it is not sufficient—something more exact is wanted. We often get accounts in our newspapers of remarkably quick passages by some of our crack steamers—for example, the Mahroussa was stated last year to have made the passage from Southampton to Malta in the unprecedented time of 157 hours, and great credit was, of course, given to the builders and the engine-makers; but little public notice was taken of the fuel consumed, which we happen to know was "Upper Four-foot Merthyr," or the very best Welsh coal. Even here our knowledge ends, and we are not informed how many tons were burnt on the voyage, nor how much steam was raised per pound of coal consumed. In April of the present year a controversy arose in the Liverpool papers as to the Australasian's run from New York in 8 days 23 hours 53 minutes, which, it was said, had hardly ever been beaten. Opponents, however, came forward who proved that the City of Paris had done better in the previous June, July, September, and December, as well as in April of the present year; although, in the case of the other steam vessels, there were handsome considerations of subsidies as inducements for the attainment of the highest speeds. The City of Paris in these remarkable voyages also burnt "Four-foot Merthyr," or the very best Welsh coal. The qualities claimed for this celebrated steam fuel are easy lighting, free burning, great amount of evaporative power, and freedom from sulphur and other extraneous matters, and the consequent absence of clinkers and smoke, and a little or no ash; the absence of smoke being one of the most desirable qualities for steam-ship purposes. There seems to have been a strange apathy on the part of our British colliery owners to come forward in a sufficiently prominent and active manner at the Paris Exhibition, and some of the best British collieries are not represented. There would have been exceedingly valuable results obtained, for example, if the marine engines exhibited had been each run for so many hours with steam got up by Welsh, French, and Belgian steam coals; if the cooking and heating apparatus and domestic fire-places had been similarly tried with the like varieties of household coals; but nothing of the sort has, so far as we know, been attempted, and the only instance of any such comparison being possible is in the fuel burnt by Galloway's boilers, serving the British court, in which 34 tons of the Bwlfa Company's Welsh coal has done the same amount of work in raising steam as 44 tons of Charleroi, burnt in the same number of hours. In both instances steam was got from cold water up to 60 lbs. pressure in two hours. The cost of Charleroi and Welsh coals delivered at the Exhibition building has been in both cases 50 francs per ton. In all such experiments it would be proper also to note whether the boilers were covered or not with any non-conducting composition or packing. Galloway's boilers at the Exhibition are covered with Space's composition—regarded as the best of its kind, and used at the Arsenal at Woolwich, by the Cunard Company, the London and North-Western Railway, Maudslays', Penn's, and other eminent companies and firms. It is, we cannot help thinking, a short-sighted policy on the part of those who represent nationalities in the direction of, as well as those who contribute towards, these great international exhibitions to neglect any means of proving either the superiority or the actual value of the articles or manufactures of their respective countries or themselves supply. Capt. Beaumont's trials of the steam engines, recently begun under the direction of the South Kensington Institute, will to a certain extent give reliable results as to quantity of water evaporated per lb. of coal—English, Welsh, Belgian, French—by a few particular boilers; and this precedent is a valuable one. What ought to have been done would have been to have erected a scientifically constructed testing furnace, such as the one at Woolwich Dockyard, for the combustion of all kinds of coals sent to the Exhibition.

#### COAL AND IRON AT THE PARIS EXHIBITION.

OFFICIAL REPORT, BY PROF. ANSTED.

The series of British coals, cokes, and artificial fuel in the Exhibition is small and imperfect, and affords no clue whatever to the resources of England in regard to this important mineral. No special illustrations are given of the methods of mining, or the geological position of the coal seams; there are few series showing the very different qualities of coal from different districts, and no specimens of several of the most important coal fields. Of the various exhibits of coal several are Welsh (mostly steam coals), one is Yorkshire, one Lancashire, one Shropshire, and one is a sample of artificial fuel (34). There are some large blocks of Welsh coal near the English light-house in the park which will, no doubt show the excellence of their quality before the end of the Exhibition; and these will compare with advantage with samples at first more showy. There is an interesting though small series of coals of the Newcastle coal field (Earl Grey's collieries), and the Wigan Company have sent a model and other illustrations of their colliery. There is a fair specimen of the thick coal of Barnsley in the park.

IRON.—Of the vast resources of England in iron ores, many of them only recently discovered, there is no attempt at illustration in the Exhibition, although a few samples will be found here and there among manufactures and metals. There are only about twelve principal exhibitors of British iron, and though they include some of the best and most celebrated firms, who have all sent goods well calculated to support their high reputation, there is nothing in the magnitude of the objects or novelty of application to render them striking to the general visitors. In these respects North Germany and other countries are much more attractive. The best British exhibits of iron are by the Bowring Iron Company (76), the Low Moor Iron Company (77), the West Yorkshire Company (134), and the Earl of Dudley (38). The last exhibit is the most interesting group. The iron of all are of the finest quality. Besides these, the West Cumberland Hematite Iron Company (128) exhibit fine specimens of their ores (hematite), fuel (made from Cumberland coal), and different qualities of pig. The kinds of pig used in making Bessemer steel, as supplied to some of the principal manufacturers (Sir John Brown and Co., the Crewe Works, &c.) are placed side by side with the metal used for other purposes.

Of iron that have passed through other processes, and are exhibited in a marketable state for use, such as large castings, bars of all sizes, and rails, rolled iron for boiler plate, ship's armour-plate, &c., there are several exhibitors, but though the quality is good the results are not showy. It is only fair to point out that, although many principal ironmasters and manufacturers connected with the iron trade of Great Britain are either absent or have sent little that is striking, most of the results exhibited in so very remarkable a manner on the French and German sides have been obtained by English methods. Bessemer steel is an example strictly in point, and many others might easily be found. It is certain that English ironmasters have little to gain by any further notoriety, and they have not cared to incur the great expense of forwarding large objects without seeing their way to any corresponding advantage. There are, however, some cases in which very good results are shown. I will briefly enumerate those to which attention should be directed. Sir John Brown and Co.—The railway-carriage buffers and steel wheel tires are of the very finest quality. Taylor Brothers and Co.—A cast-steel wheel exhibited by this firm is very re-

markable for novelty of construction as well as excellence of material. It is intended for a steam plough, and its solidity is worth careful observation. *Monk Bridge Company*.—All the objects here exhibited are interesting and excellent, and fully sustaining the high reputation of the firm. The wheel tires are made without welding by methods patented by this firm, according to which hammering and rolling are largely replaced by squeezing under hydraulic pressure. The result is in the highest degree satisfactory. Besides the wheel tires, the railway springs and boiler plate for locomotives are worth notice. *Patent Nut and Bolt Company*.—There is nothing in the Exhibition that surpasses the perfection of the work here shown. Material, quality, and sound workmanship are all combined. The bolts range in size from a 1/4 in. to 3 1/4 in. The variety is considerable.

Of manufactures in iron advanced another stage, the delicate and highly-finished architectural work of Benham and Sons deserves mention. The patent steel-wire mining tackle of Webster and Horsfall is probably the best made, and fully justifies the high reputation of the firm. It deserves notice. There is an admirable and very extensive series of all kinds of ironwork connected with the shoeing of horses, exhibited by Dollar Brothers. It may be compared with advantage with the blacksmiths' work of Franco. The material, style, finish, and careful adaptation to the form of the hoof are all equally remarkable.

Of fine steelwork there are not many exhibitors. For needles and small fish-hooks the group of objects shown by H. Millward and Sons is admirable—probably the best. There are, however, several others very good, and there is nothing very new. D. F. Taylor and Co.'s iron and steel-wire for toilet-pins and other purposes is interesting and good of its kind.

B. Baugh exhibits a group of objects enamelled on iron for various household uses. They are exceedingly beautiful, well designed, well executed, and in good taste. They are in some respects novel. Excellent household goods in plain enamelled iron and tin are exhibited by Loveridge.

In this brief enumeration of the most remarkable irons, steels, and iron manufactures referred to Class 40, it can hardly escape notice that Sheffield is very badly represented, and Birmingham and Wolverhampton very imperfectly. It is much to be regretted that this should be the case, and that the English manufacturers of cast-steel, hammered iron, and hardware should have declined to take this opportunity of inviting a comparison, of which they could not be afraid.

**PEN-Y-GRAG AND CWMCRIGEAUFAR SLATE QUARRIES.**—These quarries, which are at present being developed by Messrs. Knight and Mander, of Pencader, near Carmarthen, are nearly 140 acres in extent, and it is computed that about three-parts consist of slate of good marketable quality. The property is held under lease, renewable in perpetuity, at a royalty of one-twentieth on cash actually received, allowance being made for losses by bad debts. No royalty is to be paid out of pocket for any slate sold while on credit or in stock. There is ample space for the deposit of waste, and sufficient water to drive a 22-ft. wheel, which would work all the planing and other machinery required. A tramway, 100 yards in length, reaches the Carmarthen and Cardigan Railway, and the railway company have consented to a permanent siding being laid down. The veins of slate are large and good, showing the lamination on the surface of the table-land over a large extent, whilst in other places, especially where the development of the quarry is now going on, they are producing excellent slabs, sills, floors, and slates. The slates are very durable, those which have been 80 years in use showing no signs of decay.

**BOSCAWELL MINE (St. Just).**—In these times of gloom it is a gratifying evidence of pluck, and of faith in the future, to find gentlemen willing to come forward, buy a mine, and work it with spirit. This is the case at Boscawell, which on Saturday last was formally handed over to Mr. E. S. Boyens, of Penzance, and a company he has formed to resuscitate and explore a valuable property. If they only meet with the success they deserve, that success should be great and lasting. *Cornish Telegraph*.

**NEW APPLICATION OF TUNGSTEN.**—It has been proposed by Mr. E. GAUDIN to substitute tungsten for the black diamond hitherto employed for drilling rock. Mr. Gaudin prepares from this metal, in a flame of oxygen, a substance far more brilliant than the ruby, and which will pulverise the hardest granite quite as readily as the black diamond. Numerous experiments have shown that it can be obtained in any form and of any dimensions without difficulty; it is equally applicable for drilling rocks and for working tempered steel, and even white cast-iron.

**M. R. THOMAS & SONS, ASSAYERS, &c., COPPER ORE WHARVES, SWANSEA.** 63

**MR. J. N. MAUGHAN, STOCK AND SHAREBROKER** (Member of the Stock Exchange), No. 2, COLLINGWOOD STREET, NEWCASTLE-ON-TYNE. Transacts business in all kinds of Stocks, Bonds, and every description of Mining. Bankers.—Messrs. Lambton and Co.

**MR. E. J. BARTLETT, of 30, GREAT ST. HELEN'S, E.C.,** can RECOMMEND INVESTMENTS that will WELL REPAY for CAPITAL EMPLOYED. A Selected List on Application. SPECIAL BUSINESS in North Croft, West Godolphin, Prince of Wales, and Great Lacey. Will be published, a carefully compiled work as a Guide to Investors.

**WALTER TREGELLAS, 122, BISHOPSGATE STREET WITHIN, E.C.,** DEALS IN ALL DIVIDEND and sound PROGRESSIVE MINING SHARES, either for cash or the fortnightly settlement at close market prices. Has BUSINESS in St. John del Rey, Don Pedro, Anglo-Brazilian, Frontino, Rossa Grande, Chontales, Port Phillip, and Pestarena. WALTER TREGELLAS can confidently recommend the Taquaril Gold Mine. Full and reliable information on application. Bankers: Alliance Bank.

**MESSRS. FREDERIC GILL AND CO. STOCK AND SHAREDEALERS, ST. CLEMENT'S HOUSE, CLEMENT'S LANE, LONDON E.C.,** TRANSACT BUSINESS IN ALL MINING STOCKS, and SHARES at closest market net prices, either for cash or account.

**MESSRS. WILSON, WARD, AND CO., SHAREDEALERS, 16, UNION COURT, OLD BROAD STREET, LONDON, E.C.** BUYERS of any number of Frontino and Bolivia, and New Great Consols, shares at full market price. A special report upon New Great Consols will be had on application, post free.

**MESSRS. KEANE AND CO., MINING AGENTS, AND SHAREDEALERS, 90, CANNON STREET, LONDON, E.C., and BRIDGEWATER CHAMBERS, BROWN STREET, MANCHESTER.** 69

**ROBERT LIBBY AND SONS, MINE AND SHAREDEALERS, &c., CAMBORNE, CORNWALL.** 70

IN THE MATTER OF THE COMPANIES ACT, 1862, AND IN THE MATTER OF THE GREAT WEST CORNWALL MINING COMPANY (LIMITED).

NOTICE IS HEREBY GIVEN that ALL PERSONS having any CLAIMS or DEMANDS against this company, which is being wound-up voluntarily under the said Act, are hereby REQUIRED to SEND NOTICE and PARTICULARS of such CLAIMS or DEMANDS to the Liquidators of the company, at the office of Mr. C. Warwick, accountant, one of the said Liquidators, No. 25, Buckersbury, in the City of London, on or before the 16th day of November next, after which time they will PROCEED TO DISTRIBUTE the ASSETS of the COMPANY among the persons entitled thereto, having regard only to the claims or demands of which they then shall have had notice, and they will not be liable for the assets so distributed, or any part thereof, to any person of whose claim they shall not then have had notice, and all persons omitting to send in notice of their claims or demands by the time and in the manner aforesaid will be excluded from the benefit of distribution of the company's assets. CHARLES WARWICK, Liquidators of the company. F. ROOKE, Dated the 28th day of October, 1867.

NOTICE IS HEREBY GIVEN, that the HALF-YEARLY MEETING of the YUDANAMUTANA COPPER MINING COMPANY OF SOUTH AUSTRALIA (LIMITED), will be HELD at the London Tavern, Bishopsgate-street, London, on TUESDAY, the 26th day of November next, at Two o'clock in the afternoon precisely.

**THE SCOTTISH AUSTRALIAN MINING COMPANY (LIMITED).**—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders of the Scottish Australian Mining Company (Limited) will be HELD at the London Tavern, Bishopsgate-street, London, on FRIDAY, the 8th day of November next, at Twelve o'clock at noon precisely.

The Share Transfer-Books will be closed from Thursday, the 21st inst., until Friday, the 8th proximo, both days inclusive. By order of the Directors, C. GRAINGER, Secretary, 1, King's Arms-yard, Moorgate-street, London, Oct. 28, 1867.

**THE CAPE COPPER MINING COMPANY (LIMITED).**—Notice is hereby given, that the FOURTH ORDINARY GENERAL MEETING of the shareholders of this company will be HELD at the Terminus Hotel, Cannon-street, in the City of London, on WEDNESDAY, the 13th day of November next, at Two o'clock in the afternoon, to receive the report and accounts for the year 1866, and for general purposes.

John Wild, Esq., and Edward Jenner Jerram, Esq., having retired from office, the directors have appointed Adolphus Focking, Esq., and John Galeworthy, Esq., to fill up the vacancies thus occasioned in the board, subject to confirmation by the shareholders.

In conformity with the Articles of Association, two directors—viz., Osgood Hanbury, Jun., Esq., and William Bevan, Esq., retire from office, but, being eligible, offer themselves for re-election. It will also be the duty of the general meeting to elect two auditors for the current year, and Robert Henty, Esq., and F. W. Collard, Esq., being eligible, offer themselves for re-election.

The Transfer-Books will be closed from the 31st October until the 13th November, both days inclusive. By order of the Board, J. C. LEAVER, Secretary, 6, Queen-street-place, London, E.C., October 29, 1867.

#### RAILWAY WAGON WORKS, BARNESLEY.

**MESSRS. G. W. AND T. CRAIK,** ARE PREPARED TO SUPPLY COAL AND COKE WAGONS OF EVERY DESCRIPTION, Either for cash, or by preferred payments through wagon-leasing companies. WAGONS PROMPTLY REPAIRED. 75

**THE BEVERLEY IRON AND WAGON COMPANY (LIMITED),** 76

**MANUFACTURERS OF RAILWAY WAGONS, WHEELS, AXLES, LORRIES, CARTS, WOOD WHEELS, &c., IRONWORKS, BEVERLEY, YORKSHIRE.**

**NORTH CENTRAL WAGON COMPANY, ROTHERHAM.**

**RAILWAY WAGONS of all DESCRIPTIONS to be SOLD or LET.**—FORTY 8-ton COAL WAGONS (only run for three months) TO BE LET as SECOND HAND. A FEW COKE WAGONS, in good condition, TO BE LET as SECOND HAND. Application to be made to Mr. BARRAS, Secretary, Rotherham. 77

**NICHOLLS, MATHEWS, AND CO., ENGINEERS, BEDFORD IRONWORKS, TAVISTOCK.**

**MANUFACTURERS OF STEAM ENGINES of EVERY DESCRIPTION,** made on the BEST and NEWEST PRINCIPLES. We beg more especially to call the attention of the public to the MANUFACTURE of our BOILERS, which have been tested by most of our leading engineers. PUMP WORK CASTINGS of EVERY DESCRIPTION, both of brass and iron. HAMMERED IRON and HEAVY SHAFTS of ANY SIZE. CHAINS made of the best iron, and warranted. MINERS' TOOLS and RAILWAY WORK of EVERY DESCRIPTION. ALL ORDERS FOR ABOVE RECEIVE their BEST ATTENTION. NICHOLLS, MATHEWS, and Co. have had 20 years' experience in supplying machinery to foreign mines, and selecting experienced workmen to erect the same, where required.

Messrs. NICHOLLS, MATHEWS, and Co. have always a LARGE STOCK of SECOND-HAND MINE MATERIALS in stock, and at moderate prices.

**FOR SALE.**—A LIFT of 16-in. PUMPS and BOTTOMS, all in excellent order; a quantity of hammered iron STRAPPING PLATES, all in excellent condition; and a WATER-WHEEL, 25 feet diameter by 3 feet breast, nearly new.—Application to NICHOLLS, MATHEWS, and Co., Bedford Ironworks, Tavistock. 79

**JOHN HOCKING AND SON, ENGINEERS, REDRUTH,** CALL the ATTENTION of COLLIERY PROPRIETORS and others to the present favourable opportunities for the purchase of secondhand CORNISH PUMPING ENGINES and BOILERS at cheap rates. Plans, valuations, removal, &c., of every description of mining machinery undertaken. FOR SALE, ONE 22 in. HORIZONTAL, and ONE 24 in. VERTICAL ROTATORY ENGINE. 80

**M. R. H. D. HOSKOLD, LAND AND MINERAL SURVEYOR, CINDERFORD, NEWNHAM.**

Gentlemen requiring reliable and correct information respecting any Coal or Iron Mine Property in the Forest of Dean may obtain it on application. Surveys, Plans, Reports, and Valuations on the usual moderate terms.

**ELFORD, WILLIAMS, AND CO., COPPER ORE WHARFINGERS, SHIP BROKERS AND GENERAL EXPORTERS, METAL AND GENERAL COMMISSION AGENTS, SWANSEA.** 82

ELFORD, WILLIAMS, and Co. having erected an assay office, and engaged the services of a practical Cornish assayer, who will devote his whole time to this branch of their business, they are now in a position to make correct assays of silver, copper, and other mineral ores, on the most moderate terms.

**WILLIAMS'S PERRAN FOUNDRY COMPANY, PERRANARWORTH, CORNWALL.** MANUFACTURERS OF STEAM PUMPING and EVERY OTHER KIND of ENGINES, together with BOILERS, PUMP CASTINGS, and MINING TOOLS of every description, of the very best quality. Estimates given for the supply of any amount of machinery. London Agent.—Mr. EDWARD COOKE, 76, Old Broad-street, London, E.C.

**RAILWAY CARRIAGE COMPANY (LIMITED)** ESTABLISHED 1847. OLDBURY WORKS, NEAR BIRMINGHAM. MANUFACTURERS OF RAILWAY CARRIAGES and WAGONS, and EVERY DESCRIPTION OF IRONWORK. Passenger carriages and wagons built, either for cash or for payment over a period of years. RAILWAY WAGONS FOR HIRE. CHIEF OFFICES, OLDBURY WORKS, NEAR BIRMINGHAM. LONDON OFFICES, 6, STOREY'S GATE, GREAT GEORGE STREET, WESTMINSTER. 84

**THE BIRMINGHAM WAGON COMPANY (LIMITED)** MANUFACTURE RAILWAY WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed especially for shipping purposes. Wagons in working order maintained by contract. EDMUND FOWLER, Sec. LONDON AGENT.—MR. E. B. SAVILE, 67, Victoria-street, Westminster, S.W.

**STAFFORDSHIRE WHEEL AND AXLE COMPANY (LIMITED).** MANUFACTURERS OF RAILWAY CARRIAGE, WAGON, and CONTRACTOR'S WHEELS and AXLES, and other IRONWORK used in the CONSTRUCTION OF RAILWAY ROLLING STOCK. OFFICES AND WORKS, HEATH STREET SOUTH, SPRING HILL, BIRMINGHAM. LONDON OFFICE.—118, CANNON STREET, E.C. 86

**NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, 16, OZZELL STREET NORTH, BIRMINGHAM.** STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:—REFINED METALLIC NICKEL. REFINED METALLIC BISMUTH. OXIDE OF COBALT. GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c. NICKEL AND COBALT ORES PURCHASED. 87

**GOLDENHILL, COBALT, NICKEL, COLOUR, BORAX, AND CHEMICAL WORKS, NEAR STOKE-UPON-TRENT, STAFFORDSHIRE.** JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER, Purchaser of Borate of Lime and Tinical. Teacher of Practical Mining in the late Mining School of Cornwall, and Principal of the Engineering Academy, 36, Upper Parliament street, Liverpool. 88

**SAFETY FUSE.**—Messrs. WILLIAM BRUNTON AND CO., PENHALLICK, POOL, near CAMBORNE, CORNWALL, and BRYMBO, near WREXHAM, MANUFACTURERS OF FUSE, of every size and length, as exhibited in the Great Exhibition of 1861, and supplied to the Royal Arsenal at Woolwich, the Arctic Expedition, and every part of the globe. For the convenience of their customers and others in the North, W. BRUNTON and Co. have recently erected a branch manufactory at Brymbo, near Wrexham, where, as at Cornwall, they are at all times PREPARED to EXECUTE UNLIMITED ORDERS for SUPPLYING FUSE, upon warrant that it will prove equal to, if not better than, any to be procured elsewhere. 89

**STEAM-BOILERS** made by WILLIAM WILSON, LILYBANK BOILER WORKS, GLASGOW, on the most improved principles, for home and export. All boilers made of the best material and workmanship, proved and warranted tight under a high pressure, and delivered at any railway station or shipping port in the kingdom at moderate rates. Lithograph of boilers forwarded post-free on application. 90

**ASSAY OFFICE AND LABORATORY,** No. 2, CROWN CHAMBERS, CROWN COURT, THREADNEEDLE STREET. CONDUCTED BY W. T. RICKARD, F.C.S., &c. (Late MITCHELL and RICKARD). Assays and analyses of every description of mineral and other substances, made. Gentlemen going abroad for mining purposes instructed in assaying, and the most improved methods of reducing gold, silver, and other metals. MINING PROPERTIES INSPECTED AND REPORTED ON.

Plates, 8vo., cloth, price 10s. 6d., by post 11s. **THE MINERS' MANUAL OF ARITHMETIC AND SURVEYING.** By WILLIAM RICKARD. Teacher of Practical Mining in the late Mining School of Cornwall, and Principal of the Engineering Academy, 36, Upper Parliament street, Liverpool. Truro: Heard and Son.—London: Longman and Co.; the office of the MINING JOURNAL, 26, Fleet-street; of the author, and of all booksellers. 92

Price 1s. 6d., by post 1s. 8d. **NOTES ON THE MINES OF THE RIO TINTO DISTRICT:** Containing a DETAILED REPORT upon the MINES and on the MEANS of RENDERING THEM MORE PROFITABLE, as well as an ACCOUNT of the PROCESS of TREATING POOR ORES of COPPER, successfully used there. By JOSEPH LEE THOMAS, Assoc. I.C.E. London: MINING JOURNAL OFFICE, 26, Fleet-street, E.C. 93



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DRAUGHTSMAN AND PATENTEE'S ASSISTANT.

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The WEST ARDSLEY COMPANY having, by recently patented improvements, perfected their coal cutting machinery, worked by compressed air, are NOW READY TO MAKE CONTRACTS for the CONSTRUCTION and USE of their MACHINES.

The results of twelve months' experience in the working of these machines, by the West Ardsley Company, have proved most satisfactory, their use being found to CHEAPEN THE COST, and IMPROVE the average SIZE of the COAL, to LIGHTEN THE LABOUR, and also to MODIFY the SANITARY CONDITION of the MINE.

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**NOTICE.**—The WEST ARDSLEY COMPANY, having reason to believe that their patents are being infringed upon, hereby give notice that they will TAKE LEGAL PROCEEDINGS AGAINST ALL PARTIES who may MAKE FOR SALE, or USE ANY MACHINERY in the construction of which any such INFRINGEMENT is MADE.

**ANALYSES OF COAL, CANNEL, MINERAL OILS, and all**

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INSTANTANEOUS COMMUNICATION with the STOCK and MINING EXCHANGES, avoiding the delay and annoyance of visiting the City to ascertain prices. A Monthly Investment Circular on application.

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An opportunity of acquiring shares in such valuable properties seldom occurs, except at very high premiums; the returns of ore (which have for some time covered the cost) are increasing every month; and the mines are certain, ere long, to pay permanent dividends.

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Mortgages and Loans negotiated in all saleable or unquestionably valuable securities. Miscellaneous.

ON SALE.—Government Securities paying from 6 to 8 per cent., and other properties paying from 10 to 12 and up to 15 per cent.

**NOTICE.**—CAPT. S. M. RIDGE, of LLANIDLOES, MONTGOMERYSHIRE (late manager of the Brynastig and Cwm Ffion Mines, and others, in Shropshire and Wales), is NOW OPEN to INSPECT and faithfully REPORT UPON ANY LEAD MINE in either of these localities that may be confided to his care, having had better than 30 years' experience in lead mining, as miner and agent.—Address, Capt. S. M. RIDGE, Llanidloes, Montgomeryshire.

**MR. D. STICKLAND, M.E.,** having had upwards of 40 years' mining experience in Cornwall, several years of which he has had the entire management of mines therein, enables him to GIVE GOOD ADVICE thereon.

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Forwarded same day against Post-office order or remittance.

**THE IRON TRADE REVIEW.**—The Iron Trade Review is now

recognised as the leading organ in which the interests of the iron manufacturers of Great Britain are represented. The aim of the proprietors is to provide a journal which shall be worthy of this important branch of national industry. The following matters receive special attention:—Detailed reports of the state of trade in all the important manufacturing districts, with latest intelligence of meetings, and price lists of pig and finished iron. Occasional notices of the Continental and American trades. Condensed information relative to the proceedings of railways and other public companies which have a bearing upon the iron trade. Notices of scientific improvements applicable to the manufacture of iron. Reports on such labour questions as may arise. Notes on Parliamentary Bills bearing on the trade. In addition to the above, leading articles on important topics appear in each issue, and great care is taken that the information contained in the Review shall be thoroughly reliable. The annual subscription is one guinea, payable in advance. Advertisements are inserted on reasonable terms, which may be ascertained on application.—Published for the proprietors, at the Iron Trade Review office, Middlesbrough-on-Tees; and at 50, Grey-street, Newcastle-on-Tyne, by M. and M. W. Lambert, printers.

**In the Court of the Vice-Warden of the Stannaries.**  
Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the GREAT TREWOLLACK WHEAL ROSE SILVER-LEAD MINING COMPANY (LIMITED).**—Notice is hereby given that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court was, on the 24th day of October instant, presented to the Vice-Warden of the Stannaries, by James Goldsworthy, of St. Columb Minor, a creditor of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the Prince's Hall, Truro, in the county of Cornwall, on Saturday, the 16th day of November next, at Ten o'clock in the forenoon.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, his solicitor, or agent, of his intention to do so, such notice to be forthwith forwarded to P. P. Smith, Esq., secretary of the Vice-Warden, Truro.

Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same, on payment of the regulated charge per folio. Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before Wednesday, the 13th day of November next, and notice thereof must, at the same time, be given to the petitioner, his solicitor, or agent.

JOHN GILBERT CHILCOTT, Truro (Solicitor for the petitioner).

JOHN ELLIOTT FOX, 65, Chancery-lane, London (Agent for the said solicitor).

Dated Truro, the 26th day of October, 1867.

**In the Court of the Vice-Warden of the Stannaries.**  
Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the WHEAL CURTIS MINING COMPANY.**—ALL CREDITORS or CLAIMANTS of the ABOVE-NAMED COMPANY who have not received notice from the Registrar of the said Court that their claims have been already admitted, are hereby REQUESTED to COME IN and PROVE THEIR SEVERAL DEBTS or CLAIMS at the Registrar's Office, Truro, on Tuesday, the 12th day of November next, at Eleven o'clock in the forenoon, or in default thereof they will be excluded from the benefit of any distribution made before such proof, and for the purpose of such proof they are either to attend in person, or by their solicitors or competent agents, or (unless such attendance be required by the Registrar's summons) they are to send affidavits of their several debts or claims to the Registrar of the Court at Truro, such affidavits being sworn to either before some Commissioner of the said Court, or before any Court, Judge, Justice, or any Commissioner of one of the Superior Courts lawfully authorised to take and receive affirmations and affidavits.

WM. MICHELL, Registrar of the above-named Court, Truro, Cornwall.

Dated Registrar's Office, Truro, Oct. 31, 1867.

**In the Court of the Vice-Warden of the Stannaries.**  
Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the EAST TREFUSIS MINING COMPANY.**—The Registrar of this Court has appointed FRIDAY, the 6th day of November next, at the Registrar's Office, at Truro, to SETTLE the LIST OF CONTRIBUTORIES of the ABOVE-NAMED COMPANY, now made out and deposited at the said office.

WM. MICHELL, Registrar of the said Court.

Dated this 24th day of October, 1867.

**In the Court of the Vice-Warden of the Stannaries.**  
Stannaries of Cornwall.

**IN the MATTER of the COMPANIES ACT, 1862, and of the SILVER VALLEY MINING COMPANY.**—By the direction of His Honor the Vice-Warden, notice is hereby given that on Monday, the 11th day of November next, at the Registrar's Office, at Truro, in the county of Cornwall, at Eleven o'clock in the forenoon, the Court will PROCEED to MAKE a CALL of EIGHT SHILLINGS and SIXPENCE PER SHARE on all the contributories of the said company, settled on the list of contributories, under Class A. All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

WM. MICHELL, Registrar of the said Court.

Dated Truro, this 31st day of October, 1867.

**FOREST OF DEAN, GLOUCESTERSHIRE.**

**VALUABLE COAL AND IRON MINES.**

**MESSRS. BENTLEY AND HILL WILL SELL, BY AUCTION,** at the Spread Eagle Hotel, in the City of Gloucester, on Tuesday, the 5th day of November, 1867, at Five o'clock P.M., in Three Lots, subject to conditions of sale to be then produced,—

LOT 1.—THREE EQUAL PARTS, or SHARES, the whole into four equal parts or shares being considered as divided, in all that GALE of COAL, called the "HIGH DELF ENGINE COLLIERY," bounded as in the award of the Dean Forest Mining Commissioners is mentioned, and of the estimated extent of 318 acres. This colliery is unopened, and consists of tracts of coal in the Coleford, High Delf, Whittington, Yorkley, and Trenchard veins of coal. The royalty payable to the Crown in respect of the coal to be got from this mine is only 3d. per ton, and nearly £2000 have already been paid in respect of dead rents, which will have to be allowed to the holder of the gale under rule 14, set out in the second schedule to the said award out of the outworkings of any future years.

LOT 2.—All that GALE of COAL, called the "ROYAL COLLIERY," bounded as in the said award of the Dean Forest Mining Commissioners is mentioned, and of the estimated extent of 353 acres. This colliery is also unopened, and contains tracts of coal in the Coleford, High Delf, Whittington, Yorkley, and Trenchard veins of coal. The royalty to be paid by this mine is also 3d. per ton, and nearly £2000 have been paid for dead rents in respect of this property, which will have to be allowed to the holder, as mentioned above with reference to Lot 1. The quantity of coal in each of these gales has been estimated by competent authorities to be nearly 4,000,000 tons.

LOT 3.—All that GALE, called the "TUFFTHORN IRON MINE," situated nearly adjoining the town of Coleford, and estimated to contain 200,000 tons of iron ore, and of the estimated extent of 353 acres. This colliery is also unopened, and contains tracts of coal in the Coleford, High Delf, Whittington, Yorkley, and Trenchard veins of coal. The royalty to be paid by this mine is also 3d. per ton, and nearly £2000 have been paid for dead rents in respect of this property, which will have to be allowed to the holder, as mentioned above with reference to Lot 1. The quantity of coal in each of these gales has been estimated by competent authorities to be nearly 4,000,000 tons.

The whole of the foregoing properties are admirably situated for the delivery of their produce, being contiguous to the Severn and Wye Railway, and to the Gloucester, Dean Forest, and Monmouth Railway.

For further particulars, apply to Mr. S. M. BEALE, Solicitor, Worcester-chambers, Worcester; or to the Auctioneers, Sansome-place, Worcester.

**MINING LEASE AND PLANT FOR SALE.**

BUCKLAND MONACHORUM, NEAR TAVISTOCK, DEVON.

**MESSRS. MONK AND SON WILL SELL, BY AUCTION,** under the direction of the Liquidators of the Walkham and Poldice Tin, Copper, and Silver-Lead Mining Company (Limited), at the Roborough Inn, Horrabridge, on the Tavistock Railway, about 1½ mile from the mine, on Monday, the 18th day of November, 1867, at Three o'clock in the afternoon, in One Lot,—

**THE LEASE OF THE WALKHAM AND POLDICE TIN, COPPER, AND SILVER-LEAD MINE,**

including all ORES and HALVANS now on the SETT, and the PLANT, MACHINERY, and MATERIALS on the MINE. The whole to be sold as a going concern.

The lease is held from Sir Massey Lopes, Bart., for a term of 21 years, commencing on the 13th May, 1864, subject to a royalty of 1-15th part of all ore gotten.

The mine (which is in good working order) is situated in the parish of Buckland Monachorum, Devonshire, about 2½ miles from the Tavistock Railway-station, and 1½ mile from the Horrabridge Railway-station.

The plant and machinery include a water-wheel, 28 ft. high, 5 ft. 6 in. breast, with crusher and drawing-machine attached; another water-wheel, 18 ft., 4 ft. breast, with 6 heads iron axle stamps, complete; 30 fms. iron rods, bobs, &c.; 50 fms. plow; 7, 8, and 9 in. pumps; connecting rods, plunger, &c.; capstan and 90 fms. of 8½ in. rope; quantity of railway iron; dressing-floors, with jigging-hutches, complete; smiths' shop; tools, bellows, anvil, &c.; carpenters' shop; lot of timber, &c.

The property may be viewed, and all information obtained, on application to Capt. JOHN LEAN, on the mine; and printed particulars and conditions may be had, gratis, of Messrs. KIMBER and ELLIS, of Gresham House, Old Broad-street, E.C., London, solicitors; or of Messrs. BRIDGMAN and SON, solicitors, Tavistock, Devon; or of Captain JOHN LEAN, at the mine; at the offices of the said Messrs. MONK and SON, in Tavistock aforesaid; and at the said Roborough Inn.

**SHALE OILWORK FOR SALE**

UPSET PRICE, £2500.

**TO BE SOLD, BY PUBLIC AUCTION,** within Messrs. Cay and Black's Rooms, No. 65A, George-street, Edinburgh, on Wednesday, the 6th November, at One o'clock afternoon, if not previously disposed of by private bargain, the INTEREST of the present tenant in the unexpired period of the LEASE of a SHALE FIELD near BROXBURN, granted by the trustees of the Earl of Buchan to Messrs. William Fraser and William Fraser, Jun., for nineteen years, from Martinmas, 1864, together with the whole BUILDINGS, HOUSES, and WORKS, MACHINERY, ENGINES, RETORTS, and FITTINGS, PLANT, and ROLLING STOCK, at the work known as the ROMAN CAMP OIL WORKS, which the shale field adjoins.

The offer to be preferred must arrange with the landlords to accept him as an assignee under the lease.

For further particulars, apply to ADAM GILLIES SMITH, Esq., 59, George-street, Edinburgh; or to Messrs. J. and J. GARDNER, S.S.C., 46, Hanover-street, Edinburgh.

Edinburgh, 59, George-street, October 22, 1867.

**SLATE QUARRY FOR SALE.—A FREEHOLD ESTATE, of**

SIXTY FOUR ACRES of Arable and Pasture LAND, in the county of DEVON, with a SLATE QUARRY thereon, yielding a large monthly return of SLATE, commanding the best prices in the market, and capable of greatly extended development. The property is OFFERED FOR SALE, in consequence of the means of the proprietors being inadequate to the outlay desirable for its full working.—For particulars, apply to J. F. WILLIAMS, Esq., No. 10, Queen-square, Bloomsbury, London.

**DYFNAGWYLL LEAD MINES.**

Situate in the parish of PENEGOGES, in the county of MONTGOMERY, together with the MACHINERY, PLANT, and ERECTIONS thereon, including AGENT'S RESIDENCE, also a nearly new 10-horse power TRACTION STEAM ENGINE, by Aveling and Porter.

**MR. V. BUCKLAND WILL SELL, BY AUCTION,** at the Mart, Tokenhouse Yard, Lothbury, on Tuesday, November 19th, 1867, at Twelve for One o'clock, by order of the Liquidator, the above VALUABLE PROPERTY, which is held on lease for an unexpired term of twenty-eight years from September, 1867, at low royalties.

The mines may be inspected at any time previous to the sale, by appointment with JOSEPH ROBERTS, the manager.

Particulars and conditions may be obtained of the Manager, on the premises; at the Auction Mart; of Messrs. COBB and SOUTHEY, Solicitors, No. 4, Westminster-chambers, S.W.; or of the Auctioneer, No. 72, Cannon-street, City, London.

**SALE OF MINES AND IRONWORKS.**  
THIRD AUCTION.

MONDAY, DECEMBER 2, at Two o'clock in the afternoon, shall be SOLD PUBLICLY, the following Objects, belonging to the late estate of LUDWIG HAAS, Esq., at the City Hall of DILLENBURG (Prussian province of Nassau)—

—namely:—

1.—THE PEAT BOGS, LUDWIGHAAS and MARIANNE, judicial taxation 50,300 florins.

2.—ONE-HALF of the NICKEL and COPPER MINE, "HILFEGOTTES," judicial taxation 9000 florins.

3.—TWO HUNDRED and FORTY ACTIONS of the society "GEWERKSCHAFT INES SCHEIDER EISENWERKS (Iron Mines and Ironworks), judicial taxation 240,000 florins.

For the conditions, apply to the consigned judge—

Dillenburg, Oct. 21, 1867. Konigl. Amtsgericht, EMMUNGHAN.

**IN the course of the month of FEBRUARY, 1868, on a day to**

be fixed hereafter, will be PUBLICLY SOLD, to the highest bidder, by the COMPANY FOR THE PROMOTION OF OPENING MINES IN NETHERLANDS INDIA, in liquidation, and after future approval by Government, THE CONCESSION FOR THE WORKING OF THE COAL MINES AT BANJOERANG (KALANGAN), situate in the residency south, and eastern division of BORNEO, together with the WORKS at the MINES, erected by the company, in such condition as they may be found on being taken over.

Information can be obtained at Amsterdam, from Messrs. HEERKEN and Co., whilst the original documents are kept for investigation at the office of Messrs. TIEDEMAN and VAN KERCHER at this place.

J. J. BLANCKENHAGEN, G. A. DE LANGE, D. JANNETTE WALEN.

Batavia, 12th April, 1867.

**SLATE QUARRY, TO BE DISPOSED OF, situated in the**

county of MERIONETH, NORTH WALES. The stone is a darkish blue, and of excellent quality; the veins, of which there are three, are one mile long and 100 yards wide. There is a level driven 70 yards long, of which 30 yards is through solid slate rock. The parish road is within 600 yards of the quarry, and one mile and a half from the railway station and sea port. It is held under a lease for twenty-one years, at the expiration of which time it is to be renewed for twenty-one years more; the royalty is 1-12th. This quarry properly worked would, without the least hazard, pay from £10 to £15 per cent. It is considered by men competent of judging that it is one of best quality, and capable of being made equal, if not superior, to any in the county. It is situated between two excellent quarries.

Application to be made to Mr. E. ROBERTS, Quarry Engineer, Bethesda, Festiniog, North Wales, who will give all information and further particulars.

October 21, 1867.

**TO BE SOLD, A SLATE QUARRY, proved to be of good**

quality, with about FIFTEEN ACRES of FREEHOLD LAND, in the neighbourhood of CORRISS.

For further particulars, apply to "A. B.," Post-office, Machynlleth, North Wales.

**TO SLATE QUARRY INVESTORS.**

**TO BE DISPOSED OF, a THIRD INTEREST in a VALUABLE**

SLATE QUARRY, recently opened by the advertiser and two friends. The vein has been thoroughly tested by a level, proving the existence of a green vein, probably the purest and widest in the principality. The blue slate is now worked, and is of superior quality and cleavage.

The advertiser is leaving Wales, and would dispose of his interest for a reasonable premium on costs out of pocket.

The quarry has immense natural advantages for economical working, is close to a line of railway, has a low royalty, and a long lease.

For further particulars, apply, Box No. 5A, Post-office, Carnarvon.

**COUNTY OF WICKLOW.**

**TO BE LET, on such terms as may be agreed upon, the**

**GLENMALUR LEAD MINE,**

In the townland of BALLINAFUNCHOG, barony of BALLINACOR NORTH, and county of WICKLOW.

The mine is situate on the east side of the valley of Glenmalur, about eight miles from the town of Rathdrum, in a mineralised district of great promise. It has been worked for a considerable time up to a recent period, and was very productive. A large water-wheel, connected with a pumping apparatus, is at present employed keeping the workings clear of water. A railway is laid through, and in the adit level. Abundant supply of water power is available from the Avonbeg River adjoining, and other sources. Timber for use of the mine can be obtained on advantageous terms on the grounds. Houses suitable for the superintendents and workmen, offices, and workshops, are on the premises, and land can be given for any further accommodation that may be necessary.

Parties desirous of proposing for the mine can obtain particulars as to its extent, state, and conditions on which it will be let, on application to JOHN HILL, Esq., Civil Engineer, Ennis.

Proposals will be received by Messrs. G. and R. K. JOHNSTON, Dundalk.

**ON SALE, a LARGE STOCK of NEW AND SECONDHAND**

STEAM-ENGINES, BOILERS, STEAM HAMMERS, ENGINEERS' TOOLS, and MACHINERY of every description.

For particulars, see WHEATLEY KIRK'S "Monthly Circular," by post, free.

NEW STEAM-ENGINES, BOILERS, COLLIERIES and CONTRACTORS PLANT made at a short notice.





FIG. 1.—PATENT PORTABLE PUMPING ENGINE, WITH PUMP FIXED TO ENGINE; made in all sizes.

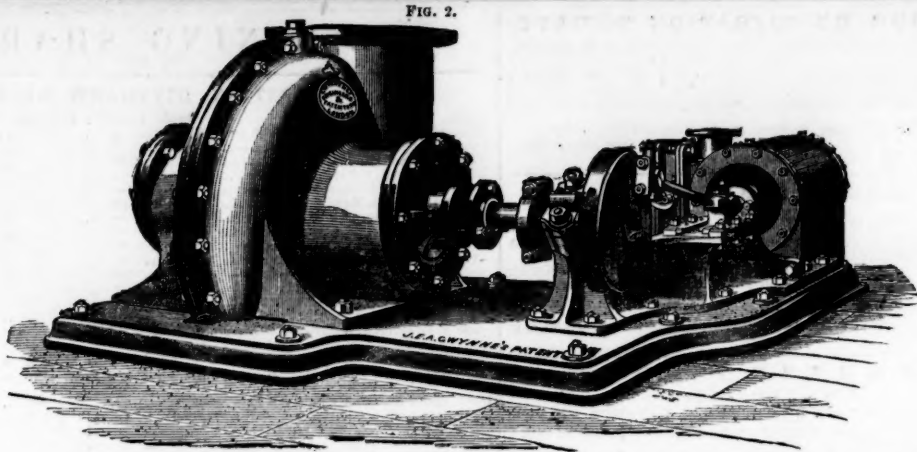


FIG. 2.—PATENT PUMPING ENGINE, FOR USE ON BOARD SHIP, COAL PITS, MINES, QUARRIES, DOCKS, CANALS, HARBOURS, &c.; FOR SURFACE CONDENSERS, PROPELLING, &c.

## G W Y N N E A N D C O.'S PATENT DOUBLE-ACTION CENTRIFUGAL PUMPING MACHINERY,

FOR IRRIGATION, DRAINAGE, MANUFACTURING, AND OTHER USES.

G W Y N N E A N D C O. have erected the largest pumping machinery in the world; they have also erected more of all powers than any other firm in existence, and are prepared to contract that their machinery will do more work with less cost of coal than any other makers.

This Machinery has received the highest commendation; and thousands of Engineers, Manufacturers, and others using it, can be referred to in all parts of the world.

G W Y N N E A N D C O. HAVE RECEIVED THE FOLLOWING PRIZE MEDALS—



### FOR MANUFACTURING PURPOSES

They are largely in use; among others, by Paper Makers, Brewers, Distillers, Dyers, Chemists, Tanners, Sugar Refiners, Bleachers, Calico Printers, Carpet Manufacturers, Engineers and Iron Founders, Woollen Cloth and Blanket Manufacturers, Oil Refineries, Soap, Alkali, Salt, Starch, and Candle Works, Water Works, Lime and Cement Works, Quarries, Coal and Iron Mines, Sheep Washing, Public Baths, Cotton, Flax, Match, Felt, Oil and other Mills, &c. Numerous references to all the foregoing can be had on application.

### FOR DRAINAGE WORKS

G W Y N N E A N D C O.'s Patent Centrifugal Pumps are in very extensive use, and some of the largest tracts of land in this country, and in Holland, Italy, Austria, France, Belgium, Denmark, Demerara, &c., are kept dry by their use.

### FOR IRRIGATION WORKS

They have been selected for very extensive works in Egypt, Turkey, Spain, France, Belgium, India, Ceylon, Java, China, Australia, Porto Rico, &c., &c.

### FOR EMPTYING DRY OR GRAVING DOCKS

They are quite unequalled, and will be found to excel all other arrangements, discharging a body of water in proportion to the lift, the speed of engines and power remaining the same; they will empty a dock in a shorter time and with much less power than is requisite with any other system. The first cost of machinery, the erection, and the foundations and brickwork necessary, are much less expensive than with any other arrangement, and the cost of keeping in thorough working order is merely nominal.

ESTIMATES FOR ANY SITUATION FORWARDED UPON APPLICATION. LIST OF PRICES FREE, ON RECEIPT OF TWO STAMPS.

G W Y N N E A N D C O., HYDRAULIC AND MECHANICAL ENGINEERS,  
ESSEX STREET WORKS, STRAND, LONDON, W.C.

## SPECIAL NOTICE.

### CLAYTON, SHUTTLEWORTH, AND CO.,

At the Triennial Trials of the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, held at Bury St. Edmunds, July, 1867, received the following AWARDS:—

- For Single Cylinder Portable Steam Engine,—THE FIRST PRIZE OF £25.
- For Double Cylinder Portable Steam Engine,—THE FIRST PRIZE OF £25.
- For Horizontal Cylinder Fixed Engine,—THE FIRST PRIZE OF £20.
- For Double Blast Finishing Thrashing Machine,—THE PRIZE OF £15.
- Also, THE SOCIETY'S SILVER MEDAL for Adjusting Blocks for Machines;
- PARIS EXHIBITION, 1867, GOLD MEDAL.

The duty performed by all CLAYTON, SHUTTLEWORTH, and Co.'s Engines on this occasion considerably exceeded that of any others, and has never been equalled at any of the trials of the Society. CLAYTON, SHUTTLEWORTH, and Co. refer with pleasure to the fact that the duty of their "Commercial" or single valve engine at Chester, so long ago as 1858, was not equalled by any "ordinary" Engine at Bury.

CLAYTON, SHUTTLEWORTH, & CO., LINCOLN; and 78, LOMBARD STREET, LONDON.

PARIS EXHIBITION, 1867—AWARDS, } Silver Medal for STEAM CRANES.  
} Bronze Medal for DONKEY FEED PUMPS.

### APPLEBY BROTHERS,

EMERSON STREET, SOUTHWARK,  
LONDON, S.E.,

Engineers and Patentees of STEAM CRANES, DONKEY PUMPS, &c.

#### PATENT DONKEY PUMPS.

Ram.....	1½ in.....	2 in.....	2½ in.....	3 in.....	3½ in.....	4 in.....	5 in.....	6 in.....	8 in.....	10 in.....	12 in.....	15 in.....	20 in.....	25 in.....	30 in.....	40 in.....	50 in.....	60 in.....	80 in.....	100 in.....	120 in.....	150 in.....	200 in.....	250 in.....	300 in.....	400 in.....	500 in.....	600 in.....	800 in.....	1000 in.....	1200 in.....	1500 in.....	2000 in.....	2500 in.....	3000 in.....	4000 in.....	5000 in.....	6000 in.....	8000 in.....	10000 in.....	12000 in.....	15000 in.....	20000 in.....	25000 in.....	30000 in.....	40000 in.....	50000 in.....	60000 in.....	80000 in.....	100000 in.....	120000 in.....	150000 in.....	200000 in.....	250000 in.....	300000 in.....	400000 in.....	500000 in.....	600000 in.....	800000 in.....	1000000 in.....	1200000 in.....	1500000 in.....	2000000 in.....	2500000 in.....	3000000 in.....	4000000 in.....	5000000 in.....	6000000 in.....	8000000 in.....	10000000 in.....	12000000 in.....	15000000 in.....	20000000 in.....	25000000 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# FREE LABOUR REGISTRATION SOCIETY FOR THE PROTECTION AND EMPLOYMENT OF NON-UNION HANDS.

Many thousands workmen belong to this Society. The public are earnestly entreated to support it by their money and names. Foremen, Clerks, Servants, and other hands, with first-class testimonials, are supplied immediately on application.

Subscriptions received by Messrs. RANSON, BOUVIER, and Co., or by F. C. MAUDE, Colonel, Hon. Secy., 9, Victoria-chambers, Westminster, S.W.

## GREEN SLATES.

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Apply to—**JAMES BIRD,**  
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The process is simple and inexpensive; the cost of manufacture, including the amalgamating material, being only 1s. per ton. The fuel is without smell, and is available for all the uses of ordinary coal. It occupies 33 cubic feet of space per ton only, as against 42, the Admiralty measurement for coal. In the various tests it has undergone it has in every instance beaten similar round coal in evaporative power, weight for weight. For particulars of these trials, and every information respecting the patents, apply to the Managing Director, or the Secretary, 26, Martin's-lane, Cannon-street, London, E.C.

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These furnaces are now in full operation, and are giving most satisfactory results, both as regards economy in fuel, complete consumption of smoke, and small wear and tear of furnace. They may be seen in daily operation at these works.

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**MAC ADAM BROTHERS AND CO., ENGINEERS, SOHO FOUNDRY, BELFAST,** after twenty years of experience, have brought their IMPROVED TURBINE to great perfection. It is applicable to all practicable heights of fall, giving much greater power from the water than any other kind of water-wheel. On low falls it has the great advantage of not being impeded by floods or backwater.

It is particularly well adapted for situations where the quantity of water is variable, and where all other wheels fail. Its motion is extremely regular, and, when desired, a governor can be applied effectively.

This wheel is at work in a great many places, to which reference will be given.

## DYNAMITE, OR NOBEL'S PATENT SAFETY BLASTING POWDER.

May now be had from  
**MESSRS. WEBB AND CO., CARNARVON.**  
Sole consignees from the patentee.

This powerful BLASTING AGENT will not explode from a spark, or concussion alone, but requires the combined effect of both, and is fired by a strong percussion cap and ordinary fuse. In a compressed state it may be fired in deep holes, or under water.  
Force, SEVEN TIMES that of the BEST GUNPOWDER.  
It will shiver to pieces cast-iron, or the toughest oak timber. No tamping is required. It is by far the safest explosive for blasting purposes ever discovered.

## NITRO-GLYCERINE, OR NOBEL'S PATENT BLASTING OIL.

THE EXPLOSIVE FORCE of this BLASTING OIL is TEN TIMES that of GUNPOWDER, and the ECONOMY and SAFETY in TIME, LABOUR, and COST in removing granite and hard rock, in sinking shafts, driving tunnels, and opening forward in close and is immense.

It will not explode from a spark or fire, but from concussion alone, and is consequently much less dangerous than gunpowder or gun-cotton. Being heavier than water it sinks to the bottom of a wet hole, no other tamping than water being required.

One charge of this blasting oil, which is now being used with wonderful effect in all the largest slate quarries in North Wales, will displace as much slate rock as four or five charges of gunpowder; and its great force, acting on a large quantity of good slate rock, shakes and dis-places it at the natural joints, or cracks, without damaging the slabs nearly so much as the more numerous blasts from any other blasting material would do.

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**STRONG WIREWORK, the cross wires equally bent; also BEST STAMP GRATES, both of iron and copper, and punched copper plates; DITTO TUBED. All the above promptly supplied at**  
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## THE MINING SHARE LIST.

### BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
1800	Alderley Edge, Cheshire	10 0 0	—	—	8 17 8	5 0 0	July 1867
200	Betalnack, t. c. St. Just	11 0 0	—	—	488 15 0	5 0 0	May 1866
4000	Brookwood, c.	1 11 0	—	—	0 5 0	2 6 0	Sept. 1866
1000	Brondfild, t. Cardigan	12 0 0	—	—	8 7 0	0 6 0	Aug. 1867
6400	Cashwell, t. Cumberland	2 10 0	—	—	0 1 6	0 1 6	Aug. 1866
916	Cargoll, s-l. Newlyn	15 5 7	11	—	13 15 0	1 0 0	Feb. 1866
500	Cregebrawse and Penkell, t.	—	—	—	1 0 0	1 0 0	Oct. 1867
867	Cwm Erfin, t. Cardigan	7 10 0	—	—	24 18 0	1 0 0	Oct. 1867
128	Cwmystwith, t. Cardigan	60 0 0	—	—	379 10 0	3 0 0	April 1867
280	Derwent Mines, s-l. Durham	300 0 0	—	—	174 10 0	5 0 0	June 1867
1024	Deer Gt. Jones, t. Tavistock	1 0 0	430	—	0 10 0	7 0 0	Sept. 1867
656	Ding Dong, t. Gwilt	40 14 6	18	—	0 10 0	10 0 0	Sept. 1867
358	Dolcoath, c. t. Camborne	128 17 6	—	—	834 10 0	3 0 0	Oct. 1867
6144	East Caradon, c. St. Cleer	2 14 6	6	54 6	14 11 6	0 2 0	July 1867
300	East Darren, t. Cardigan	32 0 0	—	—	148 10 0	2 0 0	Oct. 1867
128	East Pool, t. c. Pool, Illogan	24 5 0	—	—	412 10 0	5 0 0	Sept. 1867
1906	East Wheel Lovell, t. Wendron	3 9 0	84 1/2	84 1/2	3 1 6	0 6 8	Aug. 1867
2800	Foxdale, t. Isle of Man	25 0 0	—	—	71 0 0	0 10 0	Sept. 1867
6000	Frank Mills, t. Christow	3 18 6	—	—	3 5 6	0 5 0	Feb. 1866
15000	Great Laxey, t. Isle of Man	4 0 0	18	17 1/2	7 5 0	0 10 0	Sept. 1867
5908	Great Wheel Vor, t. c. Helston	40 0 0	18	17 1/2	12 0 6	7 6 0	Sept. 1867
1024	Herodsfoot, t. near Liskeard	8 10 0	36	—	43 10 0	1 10 0	Oct. 1867
6000	Hingston Down, c. Calstock	5 10 6	—	—	0 10 0	0 5 0	April 1866
400	Lisburne, t. Cardigan	18 15 0	—	—	495 10 0	3 0 0	Oct. 1867
3000	Maes-y-Safn, t. Flint	20 0 0	27	20 25	2 0 0	1 0 0	Sept. 1867
9000	Marke Valley, c. Caradon	4 10 6	63 1/2	63 1/2	4 1 0	0 4 0	Oct. 1867
3000	Minera Boundary, t. Wrexham	1 0 0	—	—	0 13 0	0 3 0	Mar. 1866
1800	Minera Mining Co., Wrexham	25 0 0	—	—	218 18 0	6 5 0	Aug. 1867
2000	Minning Co. of Ireland, c. t. c.	7 0 0	—	—	0 6 6	0 2 6	Mar. 1866
40000	Mynydd Iron Ore	3 5 0	—	—	157 10 0	5 0 0	Jan. 1866
200	Parys Mines, c. Anglesey	50 0 0	—	—	0 2 6	0 2 6	Aug. 1867
12800	Prince of Wales, t. Calstock	0 12 6	13 1/2	52s. 54d.	0 5 0	0 5 0	Feb. 1867
6000	Prosper United, t. c. St. Hilary	8 14 0	24 1/2	—	83 7 6	0 10 0	Aug. 1867
1120	Providence, t. Uney Lelant	10 6 7	—	29 30	562 10 0	6 0 0	July 1867
512	South Caradon, c. St. Cleer	1 5 0	—	—	0 8 11 0	1 6 0	Oct. 1867
6000	South Darren, t. Cardigan	3 6 6	—	1 1/4 1 1/4	371 13 6	1 0 0	Sept. 1867
490	So. Wh. Frances, c. Illogan	18 18 9	—	35 40	1 0 0	5 0 0	Oct. 1867
508	Summer Hill, t. Mold	3 13 6	—	—	18 16 0	0 3 0	Aug. 1867
6000	Tincroft, c. t. Pool, Illogan	9 0 0	13	12 13	11 12 6	0 7 6	Aug. 1867
2000	Trumpet Cons., t. Helston	11 10 0	12	—	21 7 6	0 2 0	Aug. 1867
3000	W. Chiverton, t. Perranzabuloe	10 0 0	67	70 72 1/2	480 10 0	4 0 0	Oct. 1867
400	W. Wheel Seton, c. Camborne	47 10 0	175	170 180	627 0 0	2 0 0	Oct. 1867
512	Wheel Bassett, c. Illogan	5 2 6	87 1/2	87 1/2	300 10 0	0 10 0	Nov. 1866
1024	Wheel Friendship, c. Tavistock	20 0 0	—	—	8 1 0	0 2 0	Feb. 1867
4295	Wheel Killy, t. St. Agnes	5 4 6	—	—	62 0 0	0 15 0	Sept. 1867
15000	Wheel Rong, c. Scorrier	8 0 0	17	17 1/2	24 15 0	3 0 0	Oct. 1867
396	Wheel Seton, c. t. Camborne	58 10 0	102 1/2	107 1/2	54 14 6	0 4 0	June 1867
1040	Wheel Trelawny, s-l. Liskeard	5 17 0	—	—	0 10 0	0 10 0	July 1867
3000	Whitehead Lead, Clitheroe	0 5 0	—	—	48 10 0	0 15 0	Oct. 1867
17000	Wicklow, c. t. Wicklow	2 10 0	—	—	—	—	—

### FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Business.	Total divs.	Per share.	Last paid.
35000	Alamillos, t. Spain	2 0 0	—	1 1/2	0 1 0	0 1 0	Oct. 1867
20000	Australian, c. South Australia	7 6 0	—	—	0 1 0	0 1 0	Aug. 1867
15000	Cape Copper Mining	7 0 0	7	63 7 1/2	2 12 6	0 10 0	April 1866
76000	Don Pedro North del Rey	0 14 0	3	23 1/2	0 7 9	0 3 6	Aug. 1867
25000	Fortuna, t. Spain	2 0 0	—	13 1/2	1 7 4	0 2 0	Oct. 1867
20000	Gen. Mining Assoc., Nova Scotia	20 0 0	—	14 16	23 10 0	0 15 0	June 1867
10000	Gonness, t. [5000 £5 pd., 5000 £4 pd.]	—	—	—	10 per cent.	—	July 1867
15000	Linares, t. Spain	3 0 0	—	1 1/4 1 1/4	11 8 4	0 2 0	Oct. 1867
60000	Panuelito, c. Chile	3 0 0	—	—	10 per cent.	—	Yearly
6000	Peel River Land and Mines	—	—	—	—	—	—
130000	Pestana, c. Italy	2 10 0	—	2 1/2	0 2 6	0 2 6	Mar. 1867
100000	Portuguese, s-l. France	29 0 0	—	9 11	4 14 3	0 11 0	June 1867
10000	Port Phillip, c. Clunest	1 0 0	1 1/4	1 1/4 1 1/4	0 18 6	0 1 0	Oct. 1867
20000	Scottish Australian Min. Co.	1 0 0	—	1 1/4 1 1/4	7 1/2 per cent.	—	Mar. 1867
11000	St. John del Rey, Brazil	15 0 0	—	59 1/2	77 5 0	4 10 0	June 1867
50000	Victoria (London) [25000 £1 pd., 25000 12s. 6d. pd.]	—	—	—	0 9 0	0 1 0	Jan. 1866
40000	West Canada Mining Co.	1 0 0	—	—	0 19 6	0 2 6	May 1866

### NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Bus. done.	Last Call.
100000	Anglo-Brazilian, g <sup>st</sup> .....	0 10 0	—	½% ¾%	Nov. 1866
12500	Anglo-Italian, g <sup>st</sup> .....	0 5 0	—	—	May 1867
25000	Burra Burr, c. South Australia .....	5 0 0	81	—	—
25000	Capula, s. Mexico <sup>st</sup> .....	1 12 0	—	—	Aug. 1866
30000	Chontales, g. s. Nicaragua <sup>st</sup> .....	4 0 0	—	3½%, 3½% 3½%	June 1867
12000	Cobre Copper Company, c. Cuba <sup>st</sup> .....	43 10 0	—	—	May 1867
10000	Copiapu Mining Company, Chile <sup>st</sup> .....	16 10 0	—	—	—
10000	Copiapu Smelting, Chile <sup>st</sup> .....	10 0 0	—	—	April 1866
300	Copper Miners' Co. of South Australia <sup>st</sup> [150 £100 pd., 150 £70 pd.] ..	150 £70 pd.]	—	—	Nov. 1866
15000	El Chico Silver Mining and Reduction Company <sup>st</sup> ..	5 0 0	—	—	Nov. 1866
8000	English and Canadian Mining Company <sup>st</sup> ..	5 0 0	—	—	Fully pd.
40000	Fortune Copper Mining Co. of Western Australia ..	2 0 0	—	—	Fully pd.
50000	Frontino and Bolivia, g. New Granada <sup>st</sup> ..	1 15 0	15s.	14s. 16s.	June 1867
10000	Great Barrier Land, Mining, &c. New Zealand ..	5 0 0	—	—	Fully pd.
80000	Great Northern, c. South Australia <sup>st</sup> ..	1 11 6	—	—	Sept. 1862
68000	Kapunda Mining Co., Australia <sup>st</sup> ..	1 0 0	—	—	—
7927	Lusitanian (Portugal) <sup>st</sup> ..	3 0 0	—	—	—
83000	Mariquita, g. Brazil ..	0 17 6	—	—	Sept. 1867
12500	Nerbudda Coal and Iron <sup>st</sup> ..	5 0 0	—	4½ 5	Aug. 1865
51800	New Quebrada, c. Venezuela <sup>st</sup> ..	3 10 0	—	1½%	—
50000	Nova Scotia Land and Gold ..	1 12 0	—	—	Sept. 1865
15000	Ota, c. New Zealand <sup>st</sup> ..	2 0 0	—	—	Fully pd.
10174	Rhenish Consolidated, [5000 £5 pd., 4174 £2 10s. pd.] ..	—	—	—	May 1866
100000	Rosa Grande, g. Brazil <sup>st</sup> ..	0 10 0	—	¾%	June 1867
15000	San Pedro del Monte, s. Mexico <sup>st</sup> ..	4 0 0	—	—	Sept. 1866
10000	San Roque, t. Spain ..	5 0 0	—	—	Fully pd.
100000	Taquaril, g. Brazil <sup>st</sup> ..	0 2 6	—	—	Sept. 1867
6000	Terresse, s-l. Isle of Sardinia ..	2 0 0	—	—	—
43174	United Mexican, s. Mexico <sup>st</sup> ..	28 5 0	—	1½% 2½%	—
10000	Vancouver, c. t. Italy ..	7 0 0	—	—	Aug. 1867
45000	Victor Emanuel, c. Italy ..	7 0 0	—	—	Fully pd.
20000	Washoe, g. Nevada ..	5 0 0	—	—	Fully pd.
80000	Worthing, c. South Australia <sup>st</sup> ..	1 0 0	—	¾% ¾%	Fully pd.
75000	Yorke Peninsula, South Australia ..	1 0 0	—	—	Fully pd.
45000	Yudnamutana, c. South Australia <sup>st</sup> ..	3 0 0	1	1 1½%	Fully pd.